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SINO-SOVIET BLOC SHIPBUILDING

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SINO-SOVIET BLOC SHIPBUILDING

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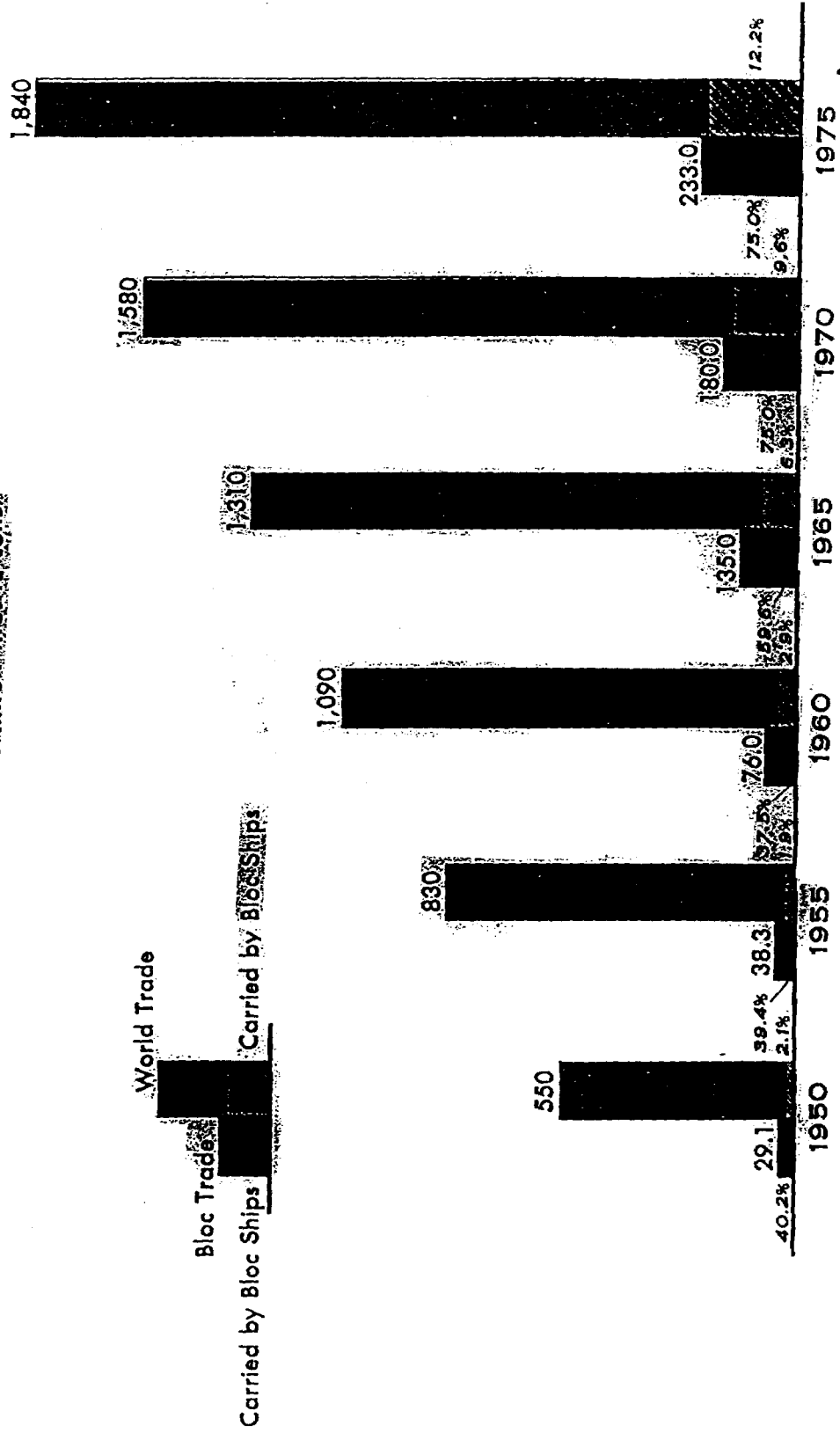
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PARTICIPATION OF BLOC* SHIPPING IN BLOC SEABORNE FOREIGN TRADE AND IN WORLD SEABORNE FOREIGN TRADE, 1950-75

(Million metric tons)



NUMBERS IN RED SHOW PERCENT OF TRADE CARRIED BY BLOC SHIPS.

*Not including Communist China.

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GROUP 1
EXCLUDED FROM AUTOMATIC DOWNGRADING AND DECLASSIFICATION

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Item 3a

Soviet Naval Shipbuilding - 1962-63

Discussion

Submarines

A. New Construction

At the present time construction of five identified classes of submarines continues in the Soviet Union. These classes have been arbitrarily designated as:

1. "H" Class - SSBN
2. "E" Class - SSGN
3. "N" Class - SSN
4. "F" Class - SS (long range torpedo attack)
5. "J" Class - probable SSG

A summary of construction during 1962 and estimated construction for 1963 is provided in Table 1.

"H" Class

Construction of this class of nuclear ballistic missile submarine continued throughout 1962 at Shipyard 402 at Severodvinsk. It is estimated that three units were produced in 1962, giving a total of ten "H" Class constructed there since 1959. Construction is estimated to be continuing with a rate of three units assigned for 1963, giving a total of thirteen units by 1964. The project number of the "H" Class remains undetermined. This class is currently identified as being operational only in the Northern Fleet.

"E" Class

Construction of this class of nuclear cruise missile submarine continued throughout 1962. Construction is at Shipyard 199 at Komsomol'sk, on the Amur River, and is estimated to be continuing. Two units were produced in 1962, one of which has since been equated to project 675 and estimated as the lead unit in a second generation of the class. These units give a total of six "E" Class constructed at Komsomol'sk since 1960.

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A construction rate of 4 units has been assigned at Komsomol'sk for 1963 for both versions of the "E" Class, giving a total of 10 units by 1964.

This class is currently operational only in the Pacific Ocean Fleet. No "E" Class submarines are expected to be constructed in the Northern Fleet during 1963.

"N" Class

Construction of this class of nuclear torpedo attack submarine continued throughout 1963. Construction is at Shipyard 402, Severodvinsk, on the White Sea, and is estimated to be continuing. It is estimated that three units were produced in 1962, giving a total of ten "N" Class constructed there since 1958. A construction rate of three units has been assigned for 1963 for the "N" Class from Severodvinsk, giving a total of thirteen units by 1964. The project number of the "N" Class remains undetermined. This class is currently identified as being operational only in the Northern Fleet.

"F" Class

Construction of this class of conventionally powered torpedo attack submarine continued throughout 1962 at the Sudomekh Shipyard at Leningrad with no evidence that construction will be terminated in the near future. The total number of "F" Class submarines launched at the Sudomekh yard since 1958 recently reached 29 units. It is estimated that an annual construction rate of four units will be maintained during 1963 with the possibility that some of the units may be the "J" Class.

In addition to the known Sudomekh units, three additional units of the "F" Class built at Severodvinsk have been added to the current Soviet Submarine OOB.

"G" Class

Construction of this class of ballistic missile submarine is estimated to have continued during 1962 at both shipyard involved in the program, Severodvinsk and Komsomol'sk. It is estimated that six units were completed at Severodvinsk. These units were added to the

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Soviet Submarine OOB for a total of 24 "G" Class currently operational in the Northern Fleet.

One unit was completed at Komsomol'sk in 1962 and added to the OOB for a total of seven units operational in the Pacific Ocean Fleet.

It is estimated that the "G" Class construction program was terminated in 1962.

"J" Class

Limited intelligence is currently available on this new class Soviet submarine which first appeared in the summer of 1963. It is currently estimated that this unit is a cruise missile configured, conventionally powered submarine. It is believed that the submarine was constructed at Sudomekh Shipyard.

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Table 1

Submarines - Shipbuilding 1962-63					Total Est. Built by 31 Dec 1963
<u>Class</u>	<u>Type</u>	<u>Yard</u>	<u>1962</u>	<u>1963</u>	
"H"	SSBN	Severodvinsk	3	3	13
"E-I"	SSGN	Komsomol'sk	1	1	6
"E-II"	SSGN	Komsomol'sk	1	3	4
					10
"N"	SSN	Severodvinsk	3	3	13
"F"	SS	Sudomekh	5	4*	29
		Severodvinsk			3**
					32
"G"	SSB	Severodvinsk	6	0	24
		Komsomol'sk	1	0	7
					31
"J"	SSG	Sudomekh		1	1

* Total shown may include some units of "J" Class.

** Estimated 1961-1962 construction.

B. Terminated Construction

A brief summary of all classes of Soviet constructed submarines which have been terminated since World War II is presented in Table 2. The total number constructed in each class is given.

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Table 2

<u>Class</u>	<u>Terminal Year</u>	<u>Estimated No. in Class</u>
"S-1"	1947	9
"SHCH-IV"	1949	6
"M-V"	1952	62
"W"	1957	236
"Z"	1957	26
"Q"	1957	30
"G"	1962	31*

* Includes ex-Pendant #777 in the Northern Fleet.

C. Conversions

"W" Class Conversions

The total number of "W" Class conversions remains at 36. currently carries 20 units of the "R" Class as "W" Class conversions on the Soviet Submarine OOB. The remaining conversions are reflected in Table 3 and include the SINGLE CYLINDER, TWIN CYLINDER, CANVAS BAG, and LONG BIN configurations.

"G" Class Ex-PT NR 777

At the present time there is no evidence relating to additional "G" Class submarines with a similar configuration or the submerged missile launch capability of PT NR 777 in the Northern Fleet area. From evidence available, it cannot be determined whether a "777" type submarine exists in the Pacific Ocean Fleet at the present time. There is

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Item 3a (Cont'd)

no evidence to confirm or deny the existence of a conversion program to retrofit the "777" system on the "H" Class SSBN in the Northern Fleet.

Sonar Modification Program

A "Z" Class submarine, configured for improved ASW performance, was recently sighted in the Sea of Japan. A STAYBRITE sonar window eight feet by eleven feet was located in the leading edge of the sail, and the forward deck sloped upward to a bulbous bow which probably housed an array type sonar. This could indicate that a modification program is underway to enhance the "Z" Class A/S capability.

D. Force Strength

A brief summary of the estimated Soviet submarine force strength and composition as of 1 October 1963 is provided in Table 3.

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Table 3

<u>Estimated Soviet Submarine Force Strength and Composition</u>		
<u>Class</u>	<u>Type</u>	<u>Total</u>
Nuclear Powered:		
"H"	SSBN	12
"E"	SSGN	6
"N"	SSN	<u>12</u>
		30
Diesel Powered:		
"G"	SSB	31
"Z" Conversion	SSB	<u>7</u>
		38
"W" Conversion	SSG (LONGBIN)	6
"W" Conversion	SSG (TWIN CYLINDER)	5
"W" Conversion	SSG (SINGLE CYLINDER)	1
"J"	SSG	<u>1</u>
		13
"F"	SS	32
"Z"	SS	19
"R"	SS	20*
"W"	SS	170
"W"	SSR (CANVAS BAG)	4
"Q"	SS	30
"M"	SS	38
"M"	SS	<u>34</u>
		309

* NTD view is that "R" is new construction (Project 633) and that 13 were built at Gor'kiy between 1958-1960.

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E. Characteristics

Significant changes in submarine characteristics, based on new intelligence received during the past year, are discussed herein with diving depths treated as a separate item. The main characteristics of submarines currently under construction in the Soviet Union are presented in Table 4.

"H" Class

... thought has been given to the possibility of more than three missiles being housed within the sail. The present estimate remains at three. The missile is believed to be housed completely within the sail area above the pressure hull and may be the same system employed in the "G" Class.

Previous estimates of power and speed still stand. No new conclusions regarding the propulsion system have been formed and the best estimate of drive is still turbo-electric, two shafts.

In view of the longer length now carried for this class, the existence of four torpedo tubes aft is now accepted as a possibility. There is, however, no evidence to confirm or deny the existence of same.

"E" Class

... Dimensional characteristics are now listed as 370 ft. LOA, and a 32 ft. beam. The existence of four after torpedo tubes on the "E" Class is presently accepted.

One of the "E" Class sighted to date has a significantly different profile including the location of the cruise launchers in the superstructure. This unit is believed to be the lead unit of a second generation "E" Class submarine and has been designated "E-II".

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Item 3a (Cont'd)

"N" Class

Reanalysis of _____ has resulted in the presently listed dimensional characteristics of a 330 ft. LOA, and a 32 ft. beam. As with the "H" Class, four after torpedo tubes are presently carried, based on the increased length.

The initial propulsion estimate still stands.

"F" Class

There have been no changes in the characteristics of the "F" Class submarine during the past year except for a reanalysis of diving capability.

"G" Class

There have been no changes in the dimensional characteristics of the "G" Class during the past year. The new view on missile stowage within the submarine is that the standard configuration "G" carries the SS-N-4, a missile of about 23 feet, making it no longer essential for the missile tubes to penetrate the pressure hull. It is currently estimated that the missiles are housed entirely within the sail.

The "G" Class "777" configuration is evaluated as being a test unit for a more advanced missile system. The missile tubes probably penetrate the pressure hull and extend to the keel of this unit. It is not currently believed that the "777" system will be backfitted on other units of the class.

Regarding the propulsion system, it is currently believed that a direct drive system employing three screws, similar to the "F" and "Z" Classes, is used. Some tenuous evidence still exists, however, indicating diesel/electric drive and this possibility cannot be excluded.

"J" Class

In mid-1963, a new Soviet submarine was photographed exiting the Baltic. On the basis of this photography this unit is evaluated as new construction. It is believed that the unit was probably built at Sudomekh. The dimensional characteristics are listed as 230 feet LOA.

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and a 33 ft. beam at the waterline. She is believed to have three screws. The centerline screw may be closed cycle propulsion. Propulsion of the outboard screws is believed to be conventional direct drive with 5-bladed screws.

Hull Construction

Considerable effort has been recently expended in conjunction with design personnel in an effort to determine whether the "N" Class submarine is a single or double hull ship.

Although certain ballast tanks are necessary, more than adequate tankage can be located both forward and aft of control and reactor compartment spaces, as has been the practice with United States' design, if, in fact, the "N" Class is a single hull. In view of the relatively slight requirement for fuel storage on a nuclear submarine, a double hull would only provide excess tankage, thereby reducing ultimate performance capability.

It is believed that the most sensible design practice for the Soviets to follow, particularly as regards an attack type submarine, would be single hull.

Diving Depths

In an effort to more accurately present an estimate of Soviet submarine depth capabilities/limitations, two depth figures, Normal Operating Depth Limit and Collapse Depth, have been listed in the table of characteristics. Collapse Depth, as listed, is derived from the hoop-stress formula utilizing known and estimated data, and is self-explanatory. Normal Operating Depth Limit is arrived at by applying a factor of safety to the calculated collapse depth and represents that point to which the submarine may descend and return safely an unlimited number of times.

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Item 3a (Cont'd)

Table 4

Soviet Navy - Details of Submarine Characteristics						
Class	H SSBN	E SSGN	N SSN	F SS	G SSB	J SSG
LOA (feet)	365	370	330	300	320	280
Beam (feet)	32	32	32	27	28	33
Draft (feet)	28	28	28	20	21	
Surf. Disp. (tons)	5,000	5,000	4,600	1,950	2,350	
Sub. Dis. (tons)	5,900	6,000	5,400	2,400	2,800	
Normal Op.	800	800	800	800	900	
Depth Limit (feet)						
Collapse Depth (feet)	1,270	1,270	1,270	1,290	1,440	
Max. Fuel (tons diesel)	N.A.	N.A.	N.A.	360	420	
95% Usable	N.A.	N.A.	N.A.	342	400	
Suf. HP	15,000	15,000	15,000	6,000	6,000	
Sub. HP	15,000	15,000	15,000	6,000	6,000	
Torp. Tubes	6F,4A	6F,4A	6F,4A	6F,4A	6F,4A	
Torp./Mines	20/40	20/40	28/56	24/48	24/48	
Missiles	3	6			3*	
Endurance:						
Surf. Max. kts.	20	20	20	18.4/5,650	17.5/6,250	
Econ.				8.5/21,200	8.3/24,400	
Sub. Max. kts.	20	18-20	20	17.5/13	16/12	
Econ.				2.5/125	2.0/100	
Snort Max. kts	N.A.	N.A.	N.A.	9.5/12,200	10.5/7,380	
Econ.				7.0/14,800	6.0/14,900	
Habitability	90	90	90	90	90	

* Ex-pendant #777 has 2 missiles.

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Item 3b

Destroyers and Escorts

KYNDA Class DDG

the second KYNDA has been completed at the Zhdanov Yard, Leningrad, and put to sea on trials.

The third KYNDA is in an advanced stage of fitting out at the Zhdanov Yard and is expected to commence sea trials in early 1964.

The fourth unit is currently in an early stage of fitting out, also at the Zhdanov Yard, and is expected to commence her sea trials in the summer of 1964.

There has been no intelligence to indicate that KYNDA Class is under construction at any other yards and this is not reckoned to be the case.

It is expected that this programme will terminate after completion of the fourth unit at the Zhdanov Yard.

KASHIN Class DDG

In March 1963 a new class of DDG was sighted near Tuapse in the Black Sea and was subsequently given the NATO name of KASHIN. This new ship, which is estimated to be the same length as KYNDA, i.e., 465 feet long, has marked differences in armament and propulsion (which is generally believed to be of steam and gas turbines combined).

The KASHIN, was stated to be on sea trials in the Black Sea in September 1962. It was built at Nikolaev North Yard, and further units are believed to be under construction there and are expected to complete at the rate of 1 per year, from this year forward.

Construction of similar ships appears to be in hand at the Zhdanov Yard, Leningrad, the first of which, now fitting out, is expected to complete during 1964. The second ship of the Zhdanov programme is known to be under construction and is expected to complete during 1965.

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A steady future programme for these ships is expected to reach three per year in 1965 (two from the Zhdanov yard and one from Nikolaev, North Yard).

Undetermined Project

No further intelligence has been received on this project
--- it seems likely though that she is of destroyer size and incorporates at least some conventional gun armament.

There are still no indications as to the yard(s) where this project may be in hand.

KOTLIN (SAM)

There have been no reliable pointers to further conversions of this type and the only one known to be in existence is generally believed to have been a one-off job.

Unidentified Project

It is a possibility that an unidentified unit of escort size, which has been noted in the Black Sea during 1961 and 1962, including participation in missile activity, represents an operational unit. The prototype of this new class which is known to mount MBUs forward, is carried on the OOB for 1 January 1963; a second unit is expected to complete at Nikolaev during 1963 and in subsequent years two further ships of the class are expected to complete each year (one of which may come from Kaliningrad).

PETYA Class PCE

Further intelligence, has been received on this class during the year and their estimated dimensions and characteristics are now well agreed.

The steady building rate of a total of nine per year, agreed last year's early development difficulties associated with the gas turbine boost engines fitted in these escorts still continue and might affect the future building rate for the class.

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POTI Class PC

New intelligence received from the Black Sea and the Pacific areas have enabled the dimensions and estimated characteristics of the POTI, first photographed in the Kerch Straits in December 1961, to be fairly firmly established. It is also generally agreed that the class, is currently under construction at Kerch and Khabarovsk, yard 308, at steady completion rates of six and two a year, respectively, from this year forward.

Improved SO-1 Class

Although the diesel driven SO-1 program has been completed suggesting the resumption of the SO-1 program incorporating gas turbine propulsion.

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Item 3b (Cont'd)

Construction Estimate - Destroyers and Escorts

	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>KYNDA</u>						
Leningrad 190 (Zhdanov)	1	2				
<u>KASHIN</u>						
Leningrad 190 (Zhdanov)		1	2	2	2	2
Nikolaev 445 (North)	1	1	1	1	1	1
<u>DEG</u>						
Nikolaev 445 (North)	1	2*	2*	2*	2*	2*
<u>PETYA PCE</u>						
Kaliningrad 820	5	5	5	5	5	5
Sevastopol 597	2	2	2	2	2	2
Khabarovsk 876	2	2	2	2	2	2
<u>POTI PC</u>						
Kerch 532	6	6	6	6	6	6
Khabarovsk 368	2	2	2	2	2	2

* One of these may come from Kaliningrad.

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Item 3c

Other Naval Ships

T-58 Class MSF

Construction has terminated.

YURKA Class MSF

In August 1962 the first photographs of an unfinished YURKA were obtained in Leningrad. Since then, other units have been seen under construction at the Ust Izhora Shipyard, No. 363, Leningrad, and at sea in the Baltic. , there is evidence that it is also being constructed at Shipyard 876, Khabarovsk. It is considered that one unit was completed in Leningrad in 1962 and six in 1963. One is expected from Khabarovsk in 1963. This steel hulled fleet minesweeper is estimated to be 170 feet long with a beam of 25 feet and a draft of seven feet six inches. Full load displacement is calculated to be 500 tons. estimated the propulsion of the YURKA to be diesel combined with gas turbine drive. however, were of the opinion that steam turbine propulsion was more likely than a combination of diesel engine and gas turbine drive.

SASHA Class MSC

Construction terminated.

VANYA Class MSC

Construction of this wooden hulled coastal class minesweeper commenced at Petrovsky Shipyard, No. 5, Leningrad, in 1961. It is estimated that six units were completed through 1962 and a further six are expected in 1963. , five units are expected from Bystryy Shipyard, Vladivostok, in 1963. These ships are considered to be about 135 feet long, with a beam of 24 feet and a draught of 8 feet. Full load displacement is reckoned to be 320 tons. The VANYA's 1,000 horsepower is expected to develop a maximum speed of 14 knots. She is armed with two 37 MM guns.

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LAMA Class AVM

No building rate was established for this class of ship. It was agreed to handle their order of battle appearance, as in the case of the DON Class, when they are sighted. The LAMA was built in a Black Sea shipyard at Nikolaev and was first seen on 4 January 1963 when she passed through the Turkish straits en-route to the Northern Fleet. considered her to be a missile support ship with storage and handling facilities to accommodate all types of submarine or surface combatant missiles (with the exclusion of SARK, which, because of weight and dimension considerations, cannot be handled). The view is that the LAMA carries only ballistic missiles for submarine use, approximately 40 in number. The LAMA is considered to be 370 feet long with a 49 foot beam and 14 foot 6 inch draught. Her displacement is 4,500 tons. Her maximum speed is thought to be 14-15 knots with 4,000 horsepower installed.

UDA Class AO

The UDA Class was first observed in the Gulf of Finland in March 1962 and was photographed in Riga on 3 May 1962. This unit carried a 57 MM gun mount abaft the funnel. The TEREK, another vessel of the UDA Class, is based in the Northern Fleet and was associated with Soviet Atlantic submarine operations during the Cuban crisis in 1962. Although the UDA Class is classified as an AO because of its obvious oiler capability, these ships probably can function as tenders, with space devoted to dry cargo storage and handling in addition to a possible repair workshop. These ships are 405 feet long with a beam of 52 feet and a draught of 17 feet. Displacement is 6,100 tons. Maximum speed is 17 knots with about 7,000 horsepower. Fuel cargo and stores are thought to total about 3,200 tons of which 2,500 tons is fuel.

DZHANKOY Class AGM

Two units of this class, CHUMIKAN and CHAZHMA, were observed fitting out in the Leningrad area in the summer of 1963. They left the Baltic on 28 July and have subsequently been observed enroute for delivery to the Pacific Ocean Fleet. It is considered that these ships

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Item 3c (Cont'd)

were converted from already existing merchant hulls of the DZHANKOY Class formerly named DANGARA and DOLGOSHCHELYE. show that these ships are 459 feet long and have a 59 foot beam and a draught of 26 feet. They are 7,265 GRT and have a displacement of 13,500 tons. Their speed is 13.2 knots with 5,400 installed horsepower.

Guided Missile Fast Patrol Craft (PGMG)

OSA Class PGMG

The OSA program is continuing in the Baltic area at Petrovsky Shipyard, No. 5, Leningrad, and it is estimated to be continuing in the Pacific area at Bystryy Shipyard, Vladivostok. A total of 58 OSA PGMG's are thought to have been completed through 1959-1962. In 1963 it is expected that 15 additional units will be built, 10 in Leningrad and 5 in Vladivostok. Future units of this class may have gas turbine propulsion. They are 122 feet long and have a 21 foot beam and 5 foot draught. They are thought to displace 160 tons. Maximum speed is considered to be 40 knots from 7,500 horsepower.

KOMAR Class PGMG

consider that this program is continuing at petrovsky Shipyard, No. 5, Leningrad, and probably also at Bystryy Shipyard, Vladivostok, through 1963. believed that KOMAR construction ended in 1961/62 and that future conversions will be accomplished only when desired for transfer to other countries. All agreed that the Soviet interest in gas turbine propulsion might result in future PGMG construction having this form of propulsion. KOMAR characteristics are length 83 feet 8 inches, beam 20 feet 3 inches, draught 6 feet. Displacement 66.5 tons, maximum sustained speed 40 knots with 4,800 rated horsepower. The following table is a construction estimate of Soviet minesweepers and below from 1963 to 1968:

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TYPE	SHIPYARD	1963	1964	1965	1966	1967	1968
YURKA MSF	Leningrad 363 poss Khabarovsk 876	6	6	6	6	6	6
		$\frac{1}{7}$	$\frac{2}{8}$	$\frac{2}{8}$	$\frac{2}{8}$	$\frac{2}{8}$	$\frac{2}{8}$
VANYA MSC	Leningrad 5 Vladivostok, Bystryy	6	6	6	6	6	6
		$\frac{5}{11}$	$\frac{5}{11}$	$\frac{5}{11}$	$\frac{5}{11}$	$\frac{5}{11}$	$\frac{5}{11}$
OSA PCMG	Leningrad 5 Vladivostok, Bystryy	10	6 a/ 4 a/ 10				
		$\frac{5}{15}$					
KOMAR PCMG	Leningrad 5 Vladivostok, Bystryy	6 a/ 6 a/ 12 b/					

a/ The possibility exists that PCMG construction will continue beyond the years listed, and that these types may have gas turbine propulsion.

b/ do not agree with this figure as they believe that no further conversions of P6 MTB to KOMAR, for Soviet use will take place.

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Item 4

Factors Affecting Overall Soviet Naval Shipbuilding

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Item 5

Soviet Maritime Shipbuilding 1962-63

Detailed estimates at Appendix A show that Soviet yards are expected to deliver some 350,600 GRT of ocean going vessels (over 1,000 GRT) in 1963, an increase of about 30% over 1962. This increase is largely accounted for by additional completions of cargo ships and tankers, the miscellaneous and fishing fleet deliveries remain almost the same. No estimates have been prepared for smaller vessels but there will be an increase to perhaps 20 units in the building of the most important class - the 800 GRT Mayak trawlers and tunny boats - at Kiev and Khabarovsk. Our estimates are as follows:

	<u>1962</u>			<u>1963</u>	
	<u>No.</u>	<u>GRT</u>		<u>No.</u>	<u>GRT</u>
Cargo	9	84,700		14	139,700
Tanker	3*	50,500*		3	96,250
Fishing	21	91,600		25	102,300
Misc.	5	12,400		5	12,400
Total	38	239,200		47	350,650

* Of which one of 8,000 tons built for East Germany.

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Item 5 (Cont'd)

Appendix A

<u>Year</u>	<u>Yard</u>	<u>Name</u>	<u>Class</u>	<u>GRT</u>	<u>DWT</u>
<u>Cargo</u>					
1962	Kherson		Leninsky Komsomol	12,000	13,000
	-	Khimik D. Zelinsky	-		
	-	Fizik Kurchatov			
	-	Metallurg Anosov			
	-	Krasnaya Presna			
	Nikolaev South	Leninsky Pioneer			
	Nikolaev South	Poltava	Poltava	9,500	10,000
	Komsomolsk	Amguema	Amguema	6,000	8,000
	Leningrad Baltic	Umbales	P. Vinogradov	4,600	5,000
	Leningrad Zhdanov	Vytegrales	Vytegrales	4,600	5,000
<u>Tankers</u>					
	Leningrad Baltic	Bukharest	Pekin	21,250	29,000
		Ulan Bator	-	-	-
	Leningrad Admiralty	Schwedt	Leningrad	8,000	11,000
<u>Fishery</u>					
	Leningrad Baltic	Churkin	Sevastopol	5,500	4,000

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Item 5 (Cont'd)

<u>Year</u>	<u>Yard</u>	<u>Name</u>	<u>Class</u>	<u>GRT</u>	<u>DWT</u>
<u>Fishery (Cont'd)</u> <u>1962</u>					
	Leningrad Admiralty	Yev. Nikishin	A. Zakharov	12,700	7,500
	Leningrad Admiralty	Aleks. Obukhov	A. Zakharov	12,700	7,500
	Nikolaev South	Agat	Mayakovsky	3,200	1,300
	-	A. Tammsaare	-	-	-
	-	Barabash	-	-	-
	-	E. Tammlaan	-	-	-
	-	Karolis Pozhela	-	-	-
	-	Khingan	-	-	-
	-	Linard Lajtsen	-	-	-
	-	Malakhit	-	-	-
	-	Kangauz	-	-	-
	-	Poset	-	-	-
	-	Samarga	-	-	-
	-	Sapfir	-	-	-
	-	Sidimi	-	-	-
	-	Suifin	-	-	-

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Item 5 (Cont'd)

<u>Year</u>	<u>Yard</u>	<u>Name</u>	<u>Class</u>	<u>GRT</u>	<u>DWT</u>
<u>Fishery (Cont'd)</u>					
<u>1962</u>					
	Nikolaev Sudoverf	D. Chasovitin	Tavriya	3,300	2,500
	-	Kazis Gedris	-	-	-
		Rudny	Tavriya	3,300	2,500
	Nikolaev #444	Sibir	Sibir	6,000	N.A.
<u>Miscellaneous</u>					
	Leningrad Zhdanov	Uzbekistan	Uzbekistan	3,200	600
	-	Bukovina	-	-	-
	Leningrad Admiralty	Vyuga	D. Nikitich	2,000	500
		Ledokol 1		-	-
		Ledokol 2		-	-

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Item 5 (Cont'd)

<u>Year</u>	<u>Yard</u>	<u>Name</u>	<u>Class</u>	<u>GRT</u>	<u>DWT</u>
<u>Cargo</u> <u>1963</u>	Kherson	Transbalt	Leninsky Komsomol	12,000	13,000
	-	Krasny Oktyabr	-	-	-
	-	Val. Tereshkova	-	-	-
	-	Ravenstvo	-	-	-
	-	Bratstvo Svoboda	-	-	-
	Nikolaev South	Krasnoye Znamya	-	-	-
	-	N.A.	-	-	-
	Nikolaev South	Polotsk	Poltava	9,500	10,000
	-	Pridneprovsk		-	-
	Nikolaev South	Perekop	Perekop	9,500	10,000
	Komsomolsk	Penzhino	Amguema	6,000	8,000
	Leningrad Baltic	Teodor Nette	P. Vinogradov	4,600	5,000
	Leningrad Zhdanov	Vostock III	Vytegrales	4,600	5,000

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Item 5 (Cont'd)

<u>Year</u>	<u>Yard</u>	<u>Name</u>	<u>Class</u>	<u>GRT</u>	<u>DWT</u>
<u>Tankers</u>					
<u>1963</u>	Leningrad Baltic	Pkhenyan	Pekin	21,250	29,000
	Leningrad Baltic	Sofia	Sofia	37,500	49,000
	Leningrad Admiralty	Hanoi	-	-	-

Fishery

Leningrad Admiralty	Konstantin A. Sukhanov	Zakharov	12,700	17,000
-	Vas Blyukher	-	-	-
Nikolaev South	Teodor Nette	Mayakovsky	3,200	4,300
-	Arkovo	-	-	-
-	Khrustal	-	-	-
-	Pechenga	-	-	-
-	Topaz	-	-	-
-	Yuozas Aleksionis	-	-	-
-	Opal	-	-	-
-	Askol'd	-	-	-
-	Oskar Luts	-	-	-
-	Mgachi	-	-	-
-	Amgu	-	-	-

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Item 5 (Contd)

<u>Year</u>	<u>Yard</u>	<u>Name</u>	<u>Class</u>	<u>GRT</u>	<u>DWT</u>
<u>Fishery (Contd)</u>					
<u>1963</u>	-	Diomid	-	-	-
	-	N.A.	-	-	-
	-	N.A.	-	-	-
	Klaipeda Baltic	Rapolas Charnas	Mayakovsky	-	-
	-	Valery Bykovsky	-	-	-
	-	Yury Gagarin	Mayakovsky	-	-
	Nikolaev Sudoverf	-	Tavriya	3,300	2,500
	-	Oktyabrsk	-	-	-
	-	Burevestnik	-	-	-
	-	Serebryansk	-	-	-
	-	Nevelskiy	-	-	-
	-	Altair	-	-	-
	Nikolaev #444	N.A.	Sibir	6,000	N.A.
<u>Miscellaneous</u>					
	Leningrad Zhdanov	Tatariya	Uzbekistan	3,200	600
	-	Qustia	-	-	-
	Leningrad Admiralty	Ledokol 3	D. Nikitich	2,000	500
		Ledokol 4	-	-	-
		N.A.	-	-	-

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Item 5a

Special Cargo Ships

The USSR has on order in her own yards and in several other countries a large number of cargo ships having certain unusual design features in common. These ships all have a 60 ton lift serving a particularly long and broad hatch over an equally long hold, in most cases this length is around 28 - 29 m (90 - 95 ft). Officially intended for the transport of lengthy and bulky objects - steel rods and structures, locomotives, buses, trailers, etc. - they are also well suited for the secure transport of military cargoes. All ships of this type then available were seen in Cuban trade in the summer of 1962 and the missiles which returned to the USSR as deck cargo on standard freighters were almost certainly taken to Cuba in the holds of this class. The ships all have a speed of 17-18 knots and the Japanese built series are capable of over 20 knots. It is reasonable to assume that some at least have the characteristics reputed of other modern Soviet merchant ships; already fitted degaussing gear and certain installations applicable to use in conditions of nuclear warfare.

On 1st July 1963 there were at least 19 such vessels in service, total orders are as follows:

USSR	Poltava	Class	2 Delivered	(1) on order
	Perekop	"		n.a.
Finland	Krasnograd	"	6	12
Japan	Omsk	"	3	5
Denmark	Beloretsk	"	3	3
E. Germany	Vyborg	"		(15)
Poland	Murom	"		(15)
Poland	Simferopol	"	5	2
Total			19	54+
			Overall Total	73 +

These ships are all due for delivery by the end of 1965 by which time the USSR could complete a minimum of 4 of the Perekop class after the lead ship which is due this year. The type also represents the only type of freighter on order in non-bloc countries except 10 ships to be built in Yugoslavia for which details are not yet known. If they are also of this type then the grand total 1.1.66 could be more than 80 vessels of some 1 million D.W.T.

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Item 5b

Development of Deep Diving Research Vessels

Types of Vessels

1. The deep diving research vessels built or under development in the USSR are described below.

Submarines

2. The converted W-class "Severyanka" made its first voyage in December 1958. According to a recent news item it has so far completed seven "expeditions" - four into the Barents Sea and three into the North Atlantic - and has dived as far as 170 m. (550 ft.). Preparations are being made for a further cruise in the North Atlantic.

3. According to one source five new research submarines were planned or actually under construction early in 1960 but there has been no further information on this subject nor any overt reference to such a programme (but see paragraph 14 below).

Bathyspheres

4. The bathysphere GG-57 is the only deep diving device currently in operation; designed principally by A.N. Dmitriev and M.N. Diamodov of the State Institute for Projecting (Planning) the Fishing Fleet - Giprorybflot - in Leningrad and built in the Baltic Yard Leningrad it has been widely publicized and described in the press.

5. A special pressure chamber was built for testing the first to be completed ("Sever 1"), capable of creating a pressure up to 120 kg./cm²; individual components were in fact tested to 100 kg./cm² and the complete bathysphere with a man inside was tested in February 1960 at 60 kg./cm², equivalent, it was stated, to the design depth of 600 m. (2,000 ft.).

6. In July 1960 acceptance trials were carried out in the Barents Sea involving 16 dives to depths ranging between 25 and 600 m. In August 1960 the bathysphere was reported en route to the Atlantic on board the "Tunets", the only vessel so far noted in association with it.

7. In the summer of 1962 it was announced that V.V. Kitaev of the Polar Scientific Research Institute of Marine Fishing and Oceanography - PINRO - had set a record by descending to a depth of 608 m. in the North Atlantic and in December the "Tunets" was reported back in Murmansk after carrying out tests in the Barents Sea under winter conditions.

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Item 5b (Cont'd)

8. In 1959, when the first announcements of the building of the bathysphere were made, it was also stated that blueprints had been completed of a new class of research ship to carry such a device; the "Akademik Knipovich" - described as the first of a series of these vessels for service mainly in the Far East - was recently launched at the Nosenko Yard in Nikolaev. There has been no indications as to where the bathyspheres will be built; the Baltic Yard in Leningrad is an obvious place but the Nosenko Yard should also be capable of building them.

Bathyscaphes

9. In March 1962 PINRO asked Giprorybflot to prepare an outline scheme for a bathyscaphe, designated GA 2000, capable of diving to a depth of 2,000 m. The outline was completed by July 1962 and approved by PINRO who asked that drawings should be prepared in 1963 so that the bathyscaphe could be built by 1965.

10. The GA 2000 will be in the form of an ellipsoid with the observers' compartment built above the main hull as a superstructure. It will carry two men, have an endurance of 24 hours, radius of action 90 km., speed of 5 knots and will be 6.5 m. long.

Development of Deep Diving Vessels

11. The organizations concerned with the development of deep diving vessels are as follows:

Giprorybflot

12. This institute in Leningrad is primarily concerned with developing schemes for new fishing and fishery associated vessels built not only in the Soviet Union but also on her behalf in Satellite and Western yards. Its detailed design function is not clear. It certainly acts as an ideas centre and probably approves the final blueprints; some of its personnel have acted as customers' representatives in the building yards but this may have been under some previous organization. There is no proof that the Institute actually prepares final blueprints and some indication that in the past these have been the responsibility of the ship Design Bureaus. The GG-57 was designed by Aleksandr Nikolaevich Dmitriev and Mikhail Nikolaevich Diomidov, both of whom have been associated for many years with trawler design. Dmitriev is a former head of the Ship-Mechanical Department of the Institute and presently

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Item 5b (Cont'd)

Deputy Head of the Future (Long Term) Planning Department. Following the GG-57 design they produced a project of a bathyscaphe to dive to 11,500 m. This was to be cigar-shaped, 17 m. long 4 m. in diameter, hull steel 150 mm. thick with a 2 m. diameter globe for observers but nothing further has been heard of the idea.

13. The GA 2000 Project was undertaken by the OKB of the Institute; the OKB (Obshchestvennoe Konstruktorskoe Byuro) is a voluntary organization where work is done ostensibly in the free time of volunteer enthusiasts. Dmitriev is Head of this OKB and Diomidov Deputy Head. The names of a number of the members of the Institute and of its OKB are known; those mentioned as specifically working on the GA 2000 were as follows:

Dmitriev	- in charge of the project
Diomidov	- on the strength of the bathyscaphe
Tokarev, Alfred S.	- buoyancy
Nazarov, Vyacheslav Yevgenevich	- radio communications
Fillipov, Viktor Nikolaevich	- engines
Ivanteyev, Peter Ivanovich	- hatches and "manipulators"
Yevonov	- piping
Speransky	- surfacing
Kolosovsky, Yury Viktorovich	- "engineer-architect"

Of these, Tokarev, Fillipov and Kolosovsky were also associated with Dmitriev and Diomidov in the plan to build a bathyscaphe for 11,500 m.

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Item 5b (Cont'd)

VNIRO

14. The three bathysphere/bathyscaphe projects are connected with the Murmansk based Polar Institute (PINRO) in association with Giprorybflot but the "Severyanka" has no connection with either of these bodies; it is subordinate to the All-Union Research Institute of Sea Fishing and Oceanography (VNIRO) in Moscow. The Director of this institute, V.P. Zaitsev, has recently discussed his ideas for a new research craft more like a submarine. This vessel would be able to conduct investigations on the surface and also submerge down to 600 m. (2,000 ft.) and will be equipped with its own bathysphere which could be lowered to even greater depths from the submerged research craft. It will have a surface speed of 14 knots and an underwater speed of 10 knots. There will be a research staff of 12-15 scientists, presumably in addition to a normal crew, who will be able to leave the ship underwater to conduct their investigations using aqualungs. There is no indication that this proposal is as yet any more than a scientist's dream.

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Item 6

Unidentified Shipbuilding Projects

Unidentified shipbuilding projects consist of those projects currently under construction for which no class designation, or only a qualified identification, is available. Table 1 treats submarine projects, and, for the sake of completeness, contains all projects and project modifications noted since 1957. Table 2 lists surface ship projects of major naval and non-naval interest.

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Table 1

Submarine Projects

<u>Hull Nos.</u>	<u>Shipyard</u>	<u>Date</u>	<u>Design Authority</u>	<u>Remarks</u>
-	Sevastopol 497	1962	-	Unidentified "W" class modification.
-	Liepaya 29	1960	-	Unidentified "W" class modification.
-	Komsomol'sk 199	1959	TsKB 18	Status unchanged since original notation. Production not started at Komsomol'sk.
-	Komsomol'sk 199 Sev. Podvinsk 402	1957 1958	TsKB PARUS ↓	"C" class SSB.
-	.	1958	SKB 112	Probably "R" class SS.

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Item 6 (Cont'd)

Table 1 (Cont'd)

<u>Hull Nos.</u>	<u>Shipyard</u>	<u>Date</u>	<u>Design Authority</u>	<u>Remarks</u>
761-?	Leningrad 196	1958	TsKB PARUS	Probably "F" class SS. Lack of construction information since 1959 for Komsomol'sk suggests early cancellation of the entire program in the Far East possibly in favor of its construction at Severodvinsk.
-	Komsomol'sk 199	1956		
-	(Severodvinsk 402)	1959/1960		
-	Komsomol'sk 199	1960	?TsKB 18?	Status unchanged since original notation.
-	Komsomol'sk 199	1959	(TsKB PARUS)	Construction at Komsomol'sk confirmed in late 1959.
-	Komsomol'sk 199			Construction believed not intended at Komsomol'sk. Possible candidate for nuclear submarine class at Severodvinsk ("H" or "N").
-	Komsomol'sk 199			Possibly represents a modified "G" class. First hull from Komsomol'sk possibly delivered during 1962. Future status undetermined.

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Item 5 (Cont'd)

Table 1 (Cont'd)

<u>Hull Nos.</u>	<u>Shipyard</u>	<u>Date</u>	<u>Design Authority</u>	<u>Remarks</u>
1640-1644	Komsomol'sk 199	1958	TsKB 18	Hulls 1640, 1641, and 1644

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Item 6 (Cont'd)

Table 1 (Cont'd)

<u>Hull Nos.</u>	<u>Shipyard</u>	<u>Date</u>	<u>Design Authority</u>	<u>Remarks</u>
140-143	Komsomol'sk 199	1959	TsKB 18	ECHO-I class SSGN. All hull numbers noted by early 1961. There is some evidence of as many as 8 hulls in the program, of which 5 were delivered between 1960 and October 1962.
-	-	1960	TsKB PARUS	Status unchanged since 1962. All available evidence indicates a bonafide submarine design of undeterminable purpose.

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Item 6 (Cont'd)

Table 1 (Cont'd)

<u>Hull Nos.</u>	<u>Shipyard</u>	<u>Date</u>	<u>Design Authority</u>	<u>Remarks</u>
1771-1777/ 171-177	Komsomol'sk 199	1960	TsKB 18	ECHO-II class SSGN. Lead hull delivered in October 1962.
		1959	TsKB PARUS	Status unchanged since 1962. All available evidence indicates a bonafide submarine design of undeterminable purpose. Possibility of closely related submarine support ship cannot be discounted.

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Item 6

Table 2
Surface Ship Projects

<u>Shipyard</u>	<u>Date</u>	<u>Design Authority</u>	<u>Remarks</u>
Kaliningrad 820	1960	(TsKB 820)	Considering Kaliningrad's past involvement in destroyer-escort construction, probably a new destroyer escort class to succeed the RIGA class. Possibly missile and/or ASW configured.
Nikolaev 445	1959	TsKB 53	KASHIN class destroyers. Lead hull 1701 noted under-going sea trials in September 1962. Second hull 1702 delivered by October 1963.
	1959		equipped with Eh3M modified hoists for 85 millimeter guns. Collateral indicates cruiser modification or a new class with SAM and SSM systems. No ASW indicators noted.

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Item 6 (Contd)

Table 2, (Cont'd)

Shipyard	Date	Design Authority	Remarks
Leningrad 194	1961	(TsKB 194)	Formerly identified as DOBRINYA NIKITICH class icebreaker. Now believed to be LEDOKOL-1 type icebreaker.
Zelendolsk 340/Kerch' (Kamysh Burun) 532	1958	TsKB 340 and its Kerch' branch	Probably POTI class subchaser.
Khabarovsk 368	1959		
Zelendolsk 340	1957	TsKB 340	Modernized version of SOL class subchaser. Slight evidence exists that some hulls of this class are being converted to gas turbine propulsion at Shipyard 532, Kerch'.
Khabarovsk 368	1958		
Kerch' 532	1962	TsKB 340	Gas turbine propelled variant of SOL class subchaser.
			Current status undetermined.

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Item 6 (Cont'd)

Table 2 (Cont'd)

Shipyard	Date	Design Authority	Remarks
Vladivostok "BYSTRYJ"	1962	TsKB 363	Probably the wooden hull VANYa class minesweeper.
Leningrad (Petrovskij)	1961		
Leningrad 363 ,	1962	(TsKB 363)	Probably YURKA class minesweeper. Fitted with controllable pitch propellers.
Khabarovsk 876			
Komsomol'sk 199	1959	TsKB 194	Probable nuclear submarine support ship. First hull probably at "..." of Shipyard 199 in May 1961.
Komsomol'sk 199	1961	TsTKB 54	Not identified. Possible naval association by virtue of its construction at Komsomol'sk.

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Item 6 (Cont'd)

Table 2 (Cont'd)

	Shipyard	Date	Design Authority	Remarks
-	Nikolaev 444	1961	TsKB 17	Probably three distinct projects

suggests that these projects are scientific research ships such as the AKADEMIK KNIPOVICH, built at Shipyard 444, Nikolaev, and the YURIJ GODIN, built at Shipyard 302, Kiev. Both these ships, launched in 1963, represent the first of a series.

Large combatant, at least 450-500 feet in length, with at least 241 frames. Fitted with ASW weapons fore and aft, with two PRGB-10 hoists at frames 239-241.

1962 TsKB 53

Unknown

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Item 6 (Cont'd)

Table 2 (Cont'd)

<u>Shipyard</u>	<u>Date</u>	<u>Design Authority</u>	<u>Remarks</u>
Unknown	1963	-	Rocket tender, possibly for re-supplying KUMAK PUMG's. Carrying capacity is 26 rockets. fuel capacity is 325 tons. Project 1798 is already a proto- type which has passed the phase testing, trials, etc. No in- formation is available on Soviet construction.

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Item 7

Soviet Shipyard Review

Severodvinsk Shipyard #402

Changes in Facilities - None

Shipbuilding - Naval

- G-class SSB

It is estimated that 6 were completed in 1962 ending construction of this class at Zavod 402. This includes PL 777 which is a modified G-class SSB.

- N-class SSN

New torpedo attack nuclear submarines have been identified during 1963 and it is estimated that production of this type continues at Severodvinsk.

- H-class SSBN

New ballistic missile nuclear submarines have been identified in the Northern Fleet during 1963 and we estimate that production of this type of submarine at Severodvinsk continues.

- E-II class SSGN

is a nuclear-powered possibly missile-equipped submarine. Construction at Severodvinsk is implied but we do not have evidence of construction of this project at 402 and it may never have started.

- F-class SS

Probably built at Zavod 402 with one being completed in 1961 and 2 in 1962. A report of August 1963 states that during 1963 five new nuclear-powered submarines will join the Northern Fleet and that they will be better, bigger and faster than the "Leninskiy Komsomol". Two of the new submarines are said to have arrived at the Murmansk base (Polyarnoye) early in the summer of 1963 with one more scheduled to arrive in September and two before ice closes the White Sea - presumably all five are Severodvinsk new construction. There are numerous similar

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Item 7 (Cont'd)

reports and some of them state that the early nuclear submarines have been broken up or completely rebuilt at Severodvinsk. This raises the point that some of the early boats may have been counted twice.

Repairs, Modifications and Conversions

We have no definite information, but we assume that most of the repair work at Severodvinsk is carried out at the repair yard ZVEZDA except for dockings which are probably undertaken by Shipyard No. 402.

Comments

Zavod 402 was supplying two propellers for the timber and cotton carrier "Suntar" (completed 30 June 1962 at Zavod 342, Navashino) and that additional propellers were on order from Zavod 402.

Komsomolsk Shipyard #199 -

In 1962, 2 more nuclear submarines went down the R. Amur making 6 in all; one was sufficiently unlike the other to suggest it may have been of a different project.

_____ left yard 199 on 21 September 1962 and was identified as a 7th G-class.

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Item 7 (Cont'd)

This is the AMGUEMA class. The first vessel was towed down the Amur in October 1961 and sailed in July 1962.

Another AMGUEMA class was delivered last year.

We know that more hulls were under construction or planned

Equipment from Sudomekh Yard

From Sudomekh's past production it is likely that the hulls are submarines. Since it is unlikely that 199 would start F production it may be that another class originally intended for Sudomekh has been supplied to 199, or merely that 199 can use the parts.

Facilities

It is likely that the new welding-assembly shop is now being used.

A second hull of this project (nuclear support ship) is suggested

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Item 7 (Cont'd)

This is the AMQUEMA class. The first vessel was towed down the Amur in October 1961 and sailed in July 1962.

Another AMQUEMA class was delivered last year.

We know that more hulls were under construction or planned

Equipment from SudomekhYard

From Sudomekh's past production it is likely that the hulls are submarines. Since it is unlikely that 199 would start F production it may be that another class originally intended for Sudomekh has been supplied to 199, or merely that 199 can use the parts.

Facilities

It is likely that the new welding-assembly shop is now being used.

A second hull of this project (nuclear support ship) is suggested

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Item 7 (Cont'd)

Promyslovka, Delivery Base of Yard 199

bearing in mind the use of PIRS at Vladivostok 202 yard, is probably used for final fitting out of nuclear submarines and nuclear support ships from yard 199 Komsomol'sk.

Vladivostok (PIRS) Delivery Base of Yard ~~199~~

Delivery base for non-nuclear submarines and surface vessels from 199. Probably near or within the perimeter of Yard 202.

Voroshilov Shipyard #202, Vladivostok

Nothing new on this yard.

Shipyard "BYSTRYY", Vladivostok

Shipbuilding - Naval

The following is an estimate of the 1963 new construction:

- a) 5 VANYA-class MSC
- b) 5 OSA-class PGMG
- c) 6 KOMAR-class PGMG possibly with gas-turbine propulsion
considers that new KOMAR's will be produced only for transfer to other countries.

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Item 7 (Cont'd)

Khabarovsk Shipyard #876 -

(PETYA class)

1961 before 1 Oct.

- PETYA 141 delivered.

1962 May

Aug.

propeller spare parts to be sent from Izhora and for assembly work to be done on Hull 28. Hull 29 at Khabarovsk 876 awaiting equipment.

Sept. 24

- PETYA sighted at 876 in final stages of fitting out

Oct. 28

- PETYA went down the river to Vladivostok
New Con 4/60.

1962 (June) PETYA sighted fitting out at 876

Production estimated as follows:

1961

1962

1963

1

1

2

(Possible YURKA minesweeper)

1962 Aug.

- The leading propeller for still needed finishing work. The leading hull of this project at 876 was probably finished in 1963. Future production rate 2 a year.

(RAKETA hydrofoil)

Three hulls were assembled in 1962

There is almost certainly a continuing requirement for this type of craft in the Far East.

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Item 7 (Cont'd)

Other Projects

In 1959 this yard was building firefighting vessels and medium trawlers. In view of the current commitments outlined above the continued construction of such vessels is doubtful.

Khabarovsk Shipyard #368 -

No known change in facilities.

Preparations for construction were being made in 1960 and 2 experimental shaft brackets made at Komsomol'sk 199. Although it was believed that 2 hulls would have been completed in 1961, this was probably over-optimistic as hulls 501 and 502* were still on trials in Vladivostok in September/November 1962 and experiencing considerable difficulties.

If a similar effort on naval work is planned for 1963 and later as obtained in 1958/9 when 10 S01's** were built each year, then an annual rate of 2 Poti's** would be feasible.

Fishing Vessels

Hulls were still under construction in 1962.

, may still be u/c.

* One delivered in October 1961 and one in October 1962.
** NSD of S01 is 115 tons; of Poti 860 tons.

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Item 7 (Cont'd)

Sevastopol Shipyard #497 -

In January 1963 an observer reported seeing 3 hulls alongside (which from description could be PETYA hulls) and 2 hulls under construction on the slips. This would support last year's estimates of construction:

<u>1961</u>	<u>1962</u>	<u>1963</u>
1	2	2

Nikolaev Shipyard #444 -

The following merchant ship classes are under construction at this yard:

LENINSKIY KOMSOMOL
POLTAVA -
PEREKOP -
MAYAKOVSKIY -
AKADEMIK KNIPOVICH

Nikolaev Shipyard #445 -

The following naval and merchant ship classes are possibly under construction at this yard:

KASHIN (DDG)
Unknown (DEG)
LAMA
SIBIR
MIRNYY

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Item 7 (Cont'd)

Oktyabrskoye Shipyard #151 -

This shipyard is known to be building TAVRIYA class refrigerated fish carriers.

Kherson Shipyard #873

Completion of Leninsky Komsomol class cargo ships at this yard over the past twelve months have shown that the assessment made last year that time between launches from each of the two lines had been shortened from six months to four months has proved correct.

It is expected that possibly six ships will be completed in this year: various reports suggest that these will be the last of this series and that 1964 deliveries will retain the same hull but with gas turbine machinery (GTU-20) originally designed for the apparently abandoned 17 000 dwt tanker project.

Kerch (Kamysh Burun) Shipyard #532 -

The production of subchasers at this yard has probably suffered the same difficulties as those noted at the Khabarovsk 368 yard. It is known that rectifiers on the "1st and 2nd hulls" were to be handed over in September 1960, suggesting completion by the end of the year although it is likely that the hulls were not fully operational until 1961.

that by 1.1.63 12 new subchasers had been delivered and this could be accounted for by a production of 2 in 1960, 5 in 1961 and 5 in 1962. However, this is not easily accepted as only 1 project since in September 1962 we know of 3 classes of hulls at the yard.

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Item 7 (Cont'd)

Feodosiya (Yuzhnaya Tochka) Shipyard #83'

In 1962 this yard was building RAKETA type hydrofoils at an estimated rate of 30 a year. This is based on the 1961/2 winter production of 13 which moved north at the start of navigation. The 94' STRELA hydrofoil is also said to be in limited series production.

Liepaja Shipyard #29 -

Shipbuilding

None

Repairs, Modifications and Conversions

There are several reports that this shipyard is very busy refitting destroyers and submarines and converting ships to fire missiles.

* T.43 - 560 NSD
POTI - 860 NSD

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Item 7 (Cont'd)

Severdlov class "October Revolution" was last heard of in Liepaja, but it is not known what she is doing there.

Comments

Baltic Shipyard #189, Leningrad .

Shipbuilding - Naval

There is a remote possibility that J class probable SSG may have been built wholly or in part at this shipyard.

Note: one slip apparently has not been used for timber carriers or refrigerator ships, therefore steel fabricating space would be available for the "J" program.

Merchant Ships

- 1) PEKIN class tankers - 21,260 GRT
ULAN BATOR: completed by 4 Jan 63
PKHENYAN: launched Jun 63, scheduled to complete in 1963
- 2) SOFIYA class tankers - 49,000 DWT, largest merchant ship ever built in the USSR.
SOFIYA: launched Dec 62, scheduled to complete in 1963
PKHENYAN (?): laid down May 62, fitting out Oct 63
- 3) PAVLIN VINOGRADOV class timber carriers - 4,750 GRT
TEODOR NETTE: laid down 8 Aug 62, launched 10 Jun 63, to complete in Oct 1963
- 4) SEVASTOPOL class refrigerated ship - 5,524 GRT
CHURKIN: launched 27 Jul 62, completed 3 Dec 62

Note: A Russian-language broadcast of 5 Jan 62 announced that the first of a new class of refrigerated ship for the fishing fleet would be constructed in 1963.

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Item 7 (Cont'd)

There is still no sign of 230 m., 1,000-passenger liner described as being under construction in Pravda Vostoka of 1 Apr 62. Leningrad papers report that this ship is only being designed there.

Repairs, Modifications and Conversions

W class LONG BIN conversion.

Note: One LONG BIN conversion was undertaken during 1963. Further conversions may be undertaken.

Missile Range Support Ship CHAZHMA reported converting at Zavod 189 30 May to 2 Jul 63.

Other Production

Heat exchangers for nuclear submarines are believed to be produced at this yard.

A Russian-language broadcast of 1 Oct 62 announced that the yard was building a large drum-type steam boiler for China.

Boilers, steam engines, diesel engines and propellers for other shipyards are produced at Zavod 189.

For several years they have produced chemical equipment such as the several sets of fertilizer production equipment delivered in 1962. A Russian-language broadcast of 22 Jul 63 stated that the yard is to manufacture an automatic plant for purifying hydrogen for synthetic ammonia production.

Production Summary

The yard completed their 10 month plan in Oct 62 and announced plans to increase the 1963 production of ships by 18 per cent over 1962.

Changes in Facilities

The two new buildings at the north end of the shipyard where Kosaya Liniya and 26-27 Liniya intersect. The light brick building nearest Kosaya Liniya is reported to be an administration building. The four-bay shop should by now be complete.

The new building east of Kosaya Liniya across from the intersection of Detskaya Ul. appears to be a shop possibly 220' x 70' x 40' high. We have no recent information on this building, but by now it should be completed.

In a Moscow broadcast of 22 Nov 63, one V. Smirnov complained that the welding equipment at the shipyard was out of date.

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Item 7 (Cont'd)

Admiralty Shipyard #194, Leningrad, ex-Marti Yard

Shipbuilding - Naval

None

Merchant Ships

- 1) SOFIYA class tankers - 49,000 DWT
HANOI: Laid down 21 Aug 62, launched 29 Apr 62
HAVANA: Laid down 14 May 63, under construction
- 2) DOBRINYA NIKITICH class or LEDOKOL class port icebreakers - 2,305 GRT
LEDOKOL 2: Launched May 62, completed Dec 62
LEDOKOL 3: Completed Jan 63
LEDOKOL 4: Launched 19 Mar 63, completed 27 Jun 63
Name unknown: Launched 30 Aug 63

Moscow radio broadcast of 11 Jan 63 announced that three would be completed in 1963 which indicates that one more is scheduled to complete this year.

- 3) ANDREI ZAKHAROV class crab cannery ships - 12,675 GRT
YEVGENIY NIKISHIN: Completed Aug 62
ALEKSANDR ZBRODOV renamed ALEKSANDR OBUKHOV: Launched 30 Jun 62, completed Dec 62
KONSTANTIN SUKHANOV: Sea trials 30 May 63
VASILIIY BLYUKHER: Launched 16 Mar 63

Repairs, Modifications and Conversions

Zavod 194 retains some technical responsibilities in connection with the icebreaker "Lenin" and maintains a special base at Murmansk (Base 92) for this purpose.

Other Production

A Russian-language broadcast of Jan 63 stated that Zavod 194 was producing chlorine storage tanks and other equipment for the chemical industry.

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Item 7 (Cont'd)

Changes in Facilities

At the beginning of March 1963, reported that the yard's security perimeter fence had been extended to the northeast. The new perimeter runs northeast to Perevoznaya taking in the tenements between that street and Myasnaya. This change may indicate an intention to enlarge the Yard.

The third optical automatic plate cutter should by now have been installed.

A gantry crane with a lift of 25 tons and a reach of 80 metres was in January 1963 from Kirov Lifting and Transport Equipment Works, Moscow. This crane was intended to facilitate building two ships side by side with the reach long enough to reach over one hull and work on the other. We have no evidence that the crane has been installed or of an increase in the number of hulls under construction at one time.

Ust Izhora Shipyard #363, Leningrad -

Shipbuilding - Naval

Production of T-58 ocean minesweepers seems to have been phased out. Two were reported at the yard on 7 Nov 62 and one 19 Nov 62.

The YURKA class possibly Project 266, is a smaller minesweeper and was first sighted at Leningrad in August 1962. This class is in series construction at Zavod 363 with about 5 under construction at one time. Six to be completed in 1963. The shipyard capacity was estimated to be 16 YURKA class per year.

Sudomekh Shipyard #196, Leningrad.

Facilities

A long narrow building with a 1 bay workshop has been under construction since mid-1962 at the NE corner of the yard.

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Item 7 (Cont'd)

At position 40, new very high screening has been installed on the jetty.

The purpose of the covered way between the 2-door and 4-door sheds is not known. Sections continue to be moved by floating crane and a new caisson fits across the end of the 2-door shed slips.

Class Submarine Production

1962

Nos. XXIII-XXVII were launched as follows:

No. XXIII	12 February
No. XXIV	28 April
No. XXV	4 July
No. XXVI	27 July
No. XXVII	7 November

Nos. XXI-XXV left the yard.

1963

No. XXVIII	28 January
No. XXIX	8 April
No. XXX	3 July
No. XXXI	(Mid-September)
No. XXXII	(Mid-December)

By the end of August 1963 Nos. XXVI-XXVIII had left the yard; 2 more should do so by the end of the year.

At Sudomekh, therefore, starting with hull No. XXVIII the production cycle has lengthened slightly to about 5 months in the 2-door shed and a similar period alongside fitting out.

Indication of Planned Production Change

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Item 7 (Cont'd)

Cylinders and Domes

These have been reported in front of the 4-door shed (20' x 8' diameter; TIKHI KHOD and OGNYEOPASNO sighted) and on the wharf at position 40 (where they are 30' x 25' diameter).

Zhdanov Yard #190, Leningrad -

Observation of this yard over the past two years has shown important developments in the utilization of its potential capacity. Since the beginning of 1962 two open building ways have been occupied by major ships where only one had previously been in regular use and the recent launching of three vessels in a short space of time from the covered building ways has shown that of the possible four ways three had hulls under construction at the beginning of 1963 while we believe that only two had been used over at least the past five years. A chart of estimated hull construction is attached. Capacity of the yard to complete new ships may have been limited in the past by refits to SKORYY and KOTLIN destroyers and the conversion of two survey ships but the latest activity shows an increase in hull steel fabrication without apparently any increase in working area. We had thought that a large amount of prefabrication work was carried out in the four door shed but use of a third building way limits that possibility. A new probable engineering shop has been completed in 1963 south of the old gantry ways but the limited height of the building suggests it is not for prefabrication work. The building has three bays with office space on the seaward side, dimensions approximately 200 ft. x 200 ft. Further new construction is taking place on the landward side of the building ways but this appears to be a fairly small shop. There are press reports of a new crane on order to move sections up to 80 tons in weight.

We do not know which of the four covered ways are in use but probably they include the two at extreme ends of the building. There is little doubt that three ways could be used outside and evidence to show that the way nearest the four door shed was in use for KHOBI class tankers some years ago. Latest photography of the yard however shows this area empty or more probably used for storing sections with shipbuilding on the two further ways served by two cranes on a single track between them.

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Item 7 (Cont'd)

Early in 1962 there were four unidentified hulls seen on the outside ways - A.B.X.Y. Hulls X and Y later became FD-I and the VYTEGRALES but A and B have not been positively identified and no extra vessels have been completed. From reports of the hull shape and building dates we believe that Hull A was KI-VII the BUKOVINA which was moved into the four door shed after the launch of the UZBEKISTAN and that Hull B was an early sighting of the Vytegrales which according to the press was laid down in January 1962. The theory that only two ways were occupied inside the shed 1959-62 rests on the idea that early ships of the KIRGIZSTAN class were built two simultaneously on a single slip; there is room for 1 2/3 hulls and some confirmatory evidence that this was intended, launch dates of individual ships show a most irregular pattern if this was not the practice.

1962 noted that the announced plan to build 32 of the VYTEGRALES class timber carrier would limit the yards capacity to build destroyers. In fact in 1963 there has seemed to be an increased emphasis on warship construction and the timber carriers are being built at a rate of only one a year. We have called the new class of warship FD (Flush Deck) although it is possible it will be the KASHIN, building also in the Black Sea area.

At previous building rates KYNDA III might complete this year, KYNDA IV and F.D. I in 1964. The passenger ship program should continue for at least one more year and more timber carriers will also be built at a rate depending on the warship program.

this program may have completed
but more of the Flush Deck class are expected either on the outside way or inside following the launch of KYNDA IV or in both sites.

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ZHDANOV YARD BUILDING CHART

A				B/C				D			
1	2	3	4	1	2	3	4	1	2	3	4
KR I	5.57	5.58	10.59							Tankers	
KR II	6.58	4.59	-					KI I	3.58	4.59	12.59
								KI II		2.60	10.60
KR IV	5.59	5.60	10.61						5.59		
								KI III		4.60	12.60
								KI IV		4.61	9.61
									5.60		
								KI V		8.61	12.61
KY III	7.61	6.62		FD I	8.62	5.63		KI VI	9.61	3.62	8.62
KY IV	7.62	4.63		FD II	5.63			KI VII	4.62	8.62	12.62
								KI VIII	9.62	4.63	
								KI IX		9.63	

Key KR = KRUPNY, KI = KIRGIZTAN, KY = KYNDA, VY = VYTEGRALES, FD = FLUSH DECK (KASHIN).
Columns 1, Ship 2, Laid down 3, Launched 4, Completed.

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ZHDANOV YARD BUILDING CHART
(Continued)

E/F				G			
1	2	3	4	1	2	3	4
	Tankers						
KR II	4.59	5.59	9.60				
KR III	6.59	2.60	6.61				
KY I	4.60	4.61	5.62				
	Tankers						
KY II	5.61	11.61	7.63	A	10.61	3.62	-
B	2.62	3.62					
VY I	4.62	9.62	12.62	FD I	5.62	8.62	-
VY II	10.62	7.63		FD II	10.62	5.63	-

Key KR = KRUPNY, KI = KIRGIZSTAN, KY = KYNDA, VY = VYTEGRALES,
FD = FLUSH DECK (KASHIN).

Columns 1, Ship 2, Laid down 3, Launched 4, Completed.

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Item 7 (Cont'd)

Petrovskiy Ostrov Yard #5, Leningrad

Reports on the yard 1962-63 have been few and irregular but have indicated a lower level of activity. This may suggest that urgent requirements have been met, over 50 of the powerful OSA are now available. KOMAR conversions in the past two years may have been only to meet export orders.

Construction of the VANYA has been at a very low level; work on the KOMAR undoubtedly limits capacity but apparently only about six of the new MSC have been completed which is less than the capacity of the yard.

Two new buildings up stream of the six door shed appear to be drawing office/administration type only.

Baltic Shipyard #890, Tallinn -

Shipbuilding - Naval

None

Merchant Ships

None

Repairs, Modifications and Conversions

We have reports of SKORYYs, KOTLINs and T-43s in the shipyard probably under repair. The largest number was on 17 Jul 63 when three destroyers and two minesweepers were reported.

The magnetic research vessel ZARYA sailed for Leningrad 24 Jul 63 for Tallinn for repairs to main engines, hull and equipment.

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Item 7 (Cont'd)

New Yard, Vyborg -

The existence of a new launching device, identified as either a lift or a lock, was confirmed in 1963 but has certainly been in existence since at least the middle of 1961. The need for this device is probably linked with the end of landing craft construction and the commencement of a new program; there is evidence that the new program is the UDA class.

Kaliningrad Shipyard #820 -

the division of this yard into three areas with three separate programs was discussed. It was noted that the maximum output of RIGA DE was not above eight per annum and that it was possible that the merchant shipbuilding area might be used if required for the Project 159 and/or Project 35 program.

Further consideration of the evidence has led to the tentative conclusion that the normal building rate of RIGA, was six per annum; four hulls building simultaneously on the new slips and taking about eight months from keel laying to launch. The PETYA PCE is comparable to the RIGA in dimensions and tonnage although of a more complex modern design and the facility with acquired skill and experience, should have the capability to build up to six but not more a year of this class also. New appearances of ships have been irregular. In both 1961 and 1962 three were first noted in the second quarter of the year and two more in the autumn. It could be postulated therefore that the PETYA's are built in pairs on the new slips completing four a year with one more built in the old slipway area but we believe that the Soviets would concentrate the naval program in one part of the yard if possible and have in fact done so, and the delivery pattern is caused by other factors.

There is fresh evidence that merchant ship construction continued in the yard after the VODOLEI and ATLANT series. According to one press statement 300 ton river cargo boats (Project 898) were built in this yard and at Klaipeda in 1959; there is confirmation of the existence of such a program at least at Klaipeda in several other reports. In 1960-62 there were several overt references to the design of a river/sea timber carrier of 2/3,000 DWT primarily to serve the Archangel-Baltic canal route, this ship was to be built at more than one yard and it will be difficult to assess the contribution from any one source.* In November 1962 it was stated that the

* The Navashino yard for example announced a plan to build such vessels in 1962 although no further references have been made to it.

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Item 7 (Cont'd)

VOLGODAR, first of a new class of timber carrier to be built at Kaliningrad had left on its maiden voyage. In July 1963 it was reported that five ships (building yard not given) were in service on the route and a sixth on trials.

From the past performance of the yard in building naval ships and with a continuing merchant program we believe it unlikely that a new naval Project 35 will appear in any number except at the expense of PETYA completions.

Gorkiy Shipyard #112, Krasnoye Sormovo -

Facilities

Another examination of the photographs, however, shows that the launch slip between the 2 halls (called Nos. 2 and 3) were removed when the larger hall No. 3 was completed in 1955; it would appear that the smaller and earlier of the two is now a steel cutting and prefabrication shop (160,000 sq. ft.) and sections are moved into the larger and newer hall for final assembly on the 5 long slips.

Construction

1962

Series production started of 2,700 DWT vessels of Project 791 for the Volga-Baltic waterway (which is to be ready in spring 1964); 10 to be ready by then.

Construction of the 2nd train-ferry SOVETSKAYA TURKMENISTAN started, also of the twin-hull catamaran crane.

SPUTNIK (300 seater river going hydrofoil) trials were completed and preparation made for series production.

RAKETA 69 and METEOR 5 hydrofoils were completed.

VIKHR 300 passenger sea-going hydrofoil accepted.

CHAIKA hydrofoil completed, water-jet propulsion.

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Item 7 (Cont'd)

RADUGA 5 seater hovercraft completed 40 passenger hovercraft is under construction.

(not identified; may be 2,000 DWT). diesel boats were u/c

1963

Continuing order for 10 2,700 ton ships. SOVIET TURKMENISTAN to leave, having been fitted out here.

Catamaran twin-hull (130 m) crane finished.

Work begun on gas turbine hydrofoil and on freight hovercraft to carry 2 1/2 tons.

16 August BALTIYSK I, first of the 2,000 DWT ships for the Volga Baltic waterway, left Gorkiy.

Rybinsk Shipyard #341, Katerostroyeniye

Nothing new on this shipyard since the evidence of Jan 62 that SASHA class coastal minesweepers were being built at Zavod 341 and fitted out at the Baku delivery base.

Rail connections have been improved according to a Moscow radio broadcast of 10 Nov 62 which related that a branch line to Rybinsk had been built to connect with the new Gorkiy-Cherepovets line.

Navashino Shipyard #342 -

Shipbuilding - Merchant Ships

Project 570 - INZHENER BELOV class cotton/timber carrier 3,398 GRT. About six ships of this class have been completed at Zavod 342 and others may be under construction. Completions known since 1962 include the SUNTAR, Hull No. 946, completed 30 Jun 62 and photographed in the Baltic in Apr 63.

A Russian-language broadcast of 24 Oct 62 stated that a 5,000 ton capacity dry cargo motor ship for service in the Volga had been completed.

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Item 7 (Cont'd)

Sosnovka Shipyard #640

Nothing new to add

Zelendolsk Shipyard #340

No known change in facilities.

The problem remains as to what Zelendolsk is building now that TSKB 340 branches have been set up at Sevastopol 497 for (Petya) and at Kamysh Burun for (Poti). As the leading yard for the production of (S.O.1) subchasers in the period 1957/'60 this yard could be expected to continue with the production of a known (presumably a gas turbine variant).

we consider that actual production takes place at Kamysh Burun 532. Although it may be argued that the lack of electric fans was delaying assembly work of hulls supports production at Zelendolsk, evidence is in favor of Kamysh Burun, and in fact we doubt whether the width of the launching ways and the height of the doors of the 2 covered slips at Zelendolsk would permit the construction the Poti class, at this yard.

Of the 3 types of hulls known to be at Kamysh Burun in the summer of 1962, 101-104, 303 and 803-805, the 100 series seems the most likely to have originated from Zelendolsk.

It is assumed that pusher tug production continues.

The Baltic Shipyard, Klaipeda -

Shipbuilding - Naval

Although Soviet naval officers occasionally visit the shipyard, there is no recent evidence of any construction for the navy.

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Item 7 (Cont'd)

Merchant Ships

Few details of the 1963 production are available. The yard is reported to be building large and small fishing trawlers and floating drydocks. Fish factory ships RAPOLIS CARNAS, 3,170 GRT, launched about 23 May 63, and VALERY BYKOVSKIY launched 28 Jul 63. Both are MAYAKOVSKIY class. There may be another of the class named YURIY GAGARIN.

Since 1958 this yard has built two floating drydocks for their own use and several for other yards. The drydock built at Klaipeda and delivered to Vladivostok in 1962 was most probably built at this Baltic Shipyard. About 12 docks of 2,500 tons (overall 5,000 tons) have been built at this yard over the years.

Repairs, Modifications and Conversions

Most repairs are carried out in the Klaipeda Ship Repair Yard (Sudoremontnyy Zavod) north of the Baltic Shipyard. There have been reports that this yard has been or will be taken over by the Baltic Shipyard.

Comments

About 1958, subordination changed from Ministry of Fish Industry of the USSR, Moscow, to the Ministry for Engine Construction in the Lithuanian SSR, Vil'nyus. Plan to increase labor force to 7,000 by 1964 and operate in 3 shifts.

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Item 8

Chinese Communist Naval Shipbuilding (1956-1963)

General

Naval shipbuilding in Communist China has now reached the third year in which no major combatant surface ships or submarines have been laid down or produced. It is apparent that the Chinese Communist Navy (CCN) is attempting to maintain its status quo through programs of repair and overhaul. There are also indications that a few ships are being modified, suggesting an attempt at modernization; but this effort is primarily directed toward the Type II and Type IV "W" class submarines, an obsolete warship and possibly a proto-type Chinese version of the "Komar" PGMG. Naval construction in the last three years has at best been confined to the building of relatively few minor patrol craft.

CCN Shipbuilding 1956-1963

Communist China embarked upon her first significant naval shipbuilding effort in 1955-1956. With extensive Soviet material and technical assistance, the Chinese were able to commence assembly of five classes of Soviet-designed warships: "W" Class submarine (SS), RIGA Class destroyer escort (DE), KRONSHTADT Class submarine chaser (PC), "P-6" Class motor torpedo boat (PT), and "T-43" Class fleet minesweeper (MSF).

1. "W" Class submarine (SS)

The "W" class submarine has been the most significant ship produced to date in Communist China. At least 15 units were built at Kiangnan shipyard in Shanghai and 6 at Wuchang shipyards. Twenty-one submarines had been laid down before Soviet withdrawal in 1960, with 17 of this total accepted by the CCN. The last four submarines, completed in 1962, experienced a delay of 18-36 months probably owing to a lack of spare parts or technical competence.

2. Other Classes

A summary of the other 4 classes of Chinese-assembled, Soviet designed ships appears in Table 1. (RIGA Class DE; KRONSHTADT Class PC; "P-6" Class motor torpedo boat (PT); and T-43 Class (MSF).

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Item 8 (Cont'd)

These programs mainly involved assembly of component sections prefabricated in the USSR. Chinese industry apparently developed the capability to support the shipbuilding industry by production of some simple components. Initially, the programs were closely supervised by Soviet shipbuilding technicians with the Chinese providing little more than the labor force. With the gradual strengthening of indigenous Chinese shipbuilding technology, the early Soviet supervisory role was largely reduced to that of technical consultant. Still, the danger of extreme reliance upon the U.S.S.R. became apparent in August 1960 when Soviet advisers were suddenly withdrawn. Economic difficulties notwithstanding, the full impact on naval shipbuilding of this withdrawal probably will never be known, but some consequences have become evident. Most significant has been the termination of construction of Soviet-designed ships, including the postponement or cancellation of a modern destroyer program and a newer class of submarine, both of which were at least in the planning stage in 1960.

Chinese-version of possible Soviet KOMAR Class (PGMG)
Guided Missile Patrol Boat

In February and March 1963, 3-4 sightings and one photograph revealed the existence of a possible KOMAR type PGMG at Wusung, boat basin, Shanghai. Certain features of this craft appear to make it similar to the Soviet version. Photographic interpretation has suggested a "P-6" PT hull, 25 mm gun forward (twin mount), stair-step pilot house, "A" frame mast and at least a port catwalk extension as well as apparent missile launchers. It is not considered likely that the Soviet Union would supply the CCN with this type, and there is no evidence of any having been transferred. Thus, this unit, if valid, is believed to be an indigenously developed craft modified from the available stock of "P-6" class PT.

By its appearance at Wusung, it can be associated with Shanghai shipyards, but there is no evidence to link it with any specific yard. The launcher modification is within Chinese Communist capabilities and the ability to design and produce an acceptable missile is not considered technologically impossible. Such a step towards modernization by the production of such a unit is in keeping with the traditional Chinese Concept of using naval forces for coastal defense. There have been no indications that a missile has been developed nor has this unit been noted in operation.

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Item 8 (Cont'd)

Unidentified Class Minesweeper

The only evidence of possible new construction has been the appearance of a possible new class minesweeper at Kioussin Dockyard, Shanghai during May, June and July 1963 (and possibly 3 similar units at Whampoa). However, it cannot be determined if this class represents modification of an existing ship or has been built by a Chinese shipyard. A preliminary study has established some tentative ship characteristics which combine features of the T-43 Class MSF, KRONSTADT Class PC, 136 Ft. Class (MSC(O)), and Soviet T-301 Class MSI. The acquisition of additional minesweepers would be a logical move in order to supplement the CCN 38-ship minesweeping force. There is also the possibility that this ship has only recently been observed, but was acquired at an earlier date.

Future capabilities of the Chinese Communist Navy (CCN) will likely depend to a large extent on the ability of shipyards to provide naval ships as needed replacements for the aging navy. The ability of Chinese shipyards to construct new ships for replacement of existing units directly affects the size, modernity and obsolescence of the CCN. There is no doubt that Chinese Communist shipyards can construct comparatively modern naval ships as they have demonstrated the ability to do this by undertaking a substantial naval shipbuilding program totalling 48,500 standard tons from 1955-60. There is some question as to whether they could perform as well without the extensive technical and material assistance provided by the USSR. Over half of current naval tonnage consists of obsolete or obsolescent ships formerly belonging to the Chinese Nationalists and built during or before World War II. This includes all the amphibious landing ships under naval control. Minesweeper strength of 38 ships is clearly deficient. In the intervening years since Soviet withdrawal, the only naval shipbuilding completed from keel up has been a modest number of patrol craft. This may result less from a technical inability to produce larger combatants than from the necessity of devoting output to merchant ship construction or hardware for which a broader demand exists. Whatever the reason, the void in naval shipbuilding has certain long-range effects on the CCN capabilities:

1. Reduction in overall naval capabilities.
2. Reduce the troop-lift capacity of the naval ships by not providing replacements for the 20 year old landing ships.
3. Further impede the limited inshore minesweeping capabilities by not providing replacements for minesweeping ships.

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Item 8 (Cont'd)

Conclusions

If developments in the CCN continue to follow the trend initiated in 1960, there will be a continued downgrading of operational and material readiness with naval shipbuilding limited to construction of patrol craft. Overall capabilities of the CCN will also decline if there are no replacements for the rapidly aging ships acquired in 1949. All efforts will probably be directed towards maintaining a patrol capability, in keeping with the defensive posture of the CCN, at the sacrifice of broader aims. Improved Sino-Soviet relations with accompanying naval assistance, could be a redeeming factor to the CCN, but would need to be effective immediately in order to check its decline.

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Item 8 (Cont'd)

Table 1

SUMMARY OF CHINESE COMMUNIST NAVAL SHIPBUILDING (1956-1963)

TYPE/CLASS	YARDS	56	57	58	59	60	61	62	63	TOTAL	REMARKS
SS/W	Kiangnan	0	4	4	3	4	0	0	0	15	Program ended at both yards in 1960.
	Wuchang	0	0	2	2	2	0	0	0	6 21*	
DE/RIGA PC/KRONSTADT	Hutung	1	2	1	0	0	0	0	0	4	Program ended in 1958.
	Kiousin	6	0	0	0	0	0	0	0	6	
	Huangpu	6	0	0	0	0	0	0	0	6	
	Unidentified	0	6	0	0	0	0	0	0	6 18	
MSF/T-43	Wuchang	2	2	2	0	0	0	0	0	6	Program ended in 1961.
	Danes Island	0	0	0	2	2	2	10	0	6 12	
PT/P-6	Various Yards	16	16	16	16	8	4	4	0	80	Only basis for 1961-62 building, is additional units reflected in current OOB estimates.
PGM/SWATOW	Various Yards	0	0	30	30	10	0	0	0	70	30 units were transferred to North Vietnam. Some units transferred to North Korea.
PTF/SHANGHAI	International	0	0	0	4	4	4	0	0	12	Program may be continuing.

* One or two more W-class units possibly have been completed.

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Item 9

Chicom Maritime Shipbuilding 1962-63

Evidence now available indicates that some increase in the level of Chinese Communist shipbuilding activity probably took place during the past year, at a time when the completion of new ships was at its lowest level, and suggests that some increase in the output of ships will occur in the near future.

The decline in output of the shipbuilding industry between 1960 and 1962 parallels the general decline of industrial production in Communist China. Moreover, analysis of output during these years indicates that the new ships completed probably represent units in the production pipeline of 1959/60. Unfortunately, because completions over the last several years represent a delayed completion of units, output since 1960 is of little aid in determining the trend of future production. It has been necessary, therefore, to look at other factors that have a bearing upon the shipbuilding industry.

One of these factors is the construction of shipbuilding facilities. During the period of the decline of shipbuilding output (1960-1963), the Chinese continue to expand facilities in several main areas, including (1) the Whampoa Naval Shipyard complex, (2) the Chin Ling Shipyard in Nanking, and (3) the Hutung and Chiangnan shipyards in Shanghai. There is little evidence of any change of facilities at the other major shipyards, but all the major yards did receive considerable new facilities in earlier years. The continuation of the expansion of shipbuilding facilities, therefore, even if on a very modest scale, must be taken as an indication of an intention by the Chinese to resume ship construction at higher levels than those currently observed.

Another factor is an increase in shipyard activity observed since late 1962. Although tenuous, the increased number of references to shipyards and to work underway in shipyards is taken as an indicator of increased shipbuilding activity. Of related interest is an increase in diesel engine production activity that also began late in 1962. Many of these activities concern smaller ships and engines with lower ranges of horsepower. Significantly, it is with small ships that the shipbuilding industry has its greatest current capability.

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Other factors point to some degree of a need for an increase in the number of ships. The Chinese currently have under major repair three merchant ships, one of which is 40 years old. Since this type of repair requires a considerable investment and 3-4 years of work, such an expenditure in a 40 year old ship would not be undertaken in the West. Also, for the first time in several years we have observed a capital construction plan for ships (for 1964). Only a limited number of ships are included and these are river types but they probably represent some form of priority construction since both tugs and passenger ships are included. Moreover, water transport figures have increased in 1963 over 1962. The tonnage of Chinese ships in operation for the first half of 1963 is up about 40 percent over that for the same period in 1962, and, further, most ships not in operation appear to be in a repair rather than a laid-up status.

An increase in the general level of Chinese industrial production was noted in the latter half of 1962 and continued into 1963. The shipbuilding factors noted above, when viewed as a whole, suggest that some increase in the level of shipbuilding activity took place during 1963, and possibly as early as late in 1962. The apparent parallel between these two suggests that increased output by the shipbuilding industry is at least in part related to some recovery of the Chinese economy.

While the status of the national economy is an important limitation upon output an even more important limitation is the significant imbalance within the shipbuilding industry created by the development of the industry in two stages. Priorities were given first to the building of ship assembly facilities in order to assemble components and equipment furnished by the USSR. As a result the major Chinese shipyards and a number of the smaller shipyards acquired modern facilities that are now staffed by inexperienced ship assembly personnel. The basic support industry lagged behind the development of assembly facilities. Although a greater concentration of investment and effort to broaden this supporting industrial base was begun late in 1958 or early 1959, with Soviet assistance, this base for the production of components and equipment and for the design of ships was still weak at the time of the withdrawal of Soviet assistance in 1960. It is significant that the Chinese have produced a number of merchant ships since the withdrawal, indicating that the supporting industrial base probably produced the necessary missing components and equipment. The small number of units, however, and the time required for completion implies that the supporting base is still limited to small scale production.

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One new development within China may have an important bearing upon the Chinese shipbuilding industry. On 28 September 1963, the Standing Committee of the National People's Congress announced the formation of the 5th and 6th Ministries of Machine Building. The functions assigned to these new ministries is not known, although the leadership of the Ministries have a defense orientation, suggesting a defense industrial upgrading similar to that observed for the electronic industry, with the creation of the 4th Ministry in May 1963.

Of possible significance is the appointment of Fang Ch'iang as minister of the 6th Ministry. Fang is an Admiral in the Chinese Navy who held the post of Deputy Commander of the Navy between 1954 and January 1960. In January 1960 he became Vice Minister of the 1st Ministry of Machine Building. The shipbuilding industry was a part of this ministry until September 1960 when the defense industries were subordinated to the 3rd Ministry. Between September 1960 and the present the 1st Ministry has retained control of the non-military industries.

the former 9th Bureau has been upgraded to the level of a ministry and the function of the 6th Ministry is shipbuilding. The increased emphasis for shipbuilding in this change strengthens the likelihood of an increase in output in the near future.

Construction of merchant ships for 1962 is shown in the following chart. The highlight for 1962 was, of course, the completion of the LEAP FORWARD (YUEH CHIN).

There have been no completions identified to date for 1963, although the MIN CHU 19 was noted in early August about ready for sea trials. In addition, work is continuing on the EAST WIND (TUNG FENG) and presumably on the second hull of the LEAP FORWARD class. Discussion of a 3,000 ton tanker, possibly of the CHIEN SHE 9 series, has been noted as have references to a number of ships for inland waterway use. Actual completion for 1963 probably will be limited to the MIN CHU 19.

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Item 9 (Cont'd)

Completion of Maritime Ships in Communist China
1962

	<u>Shipyard</u>	<u>Name</u>	<u>Class</u>	<u>GRT</u>	<u>DWT</u>
<u>Cargo</u>	Dairen	YUEH CHIN (LEAP FORWARD)	YUEH CHIN	12,090	15,790
	Dairen	HO PING 73*	HO PING 25	4,730	5,940
<u>Passenger</u>					
	Hu Tung	MIN CHU 20*	MIN CHU 14	2,670	1,100

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Item 10

Chicom Shipyard Review

Dairen

No known change in facilities; but there is confirmation of 3 building slips, not 4. In 1962 there was a suggestion of the construction of shipbuilding facilities some distance to the South of Dairen, but we have no recent information on the status of this project.

In 1962 the YUEH CHIN was finished, (she sank in May 1962) the sister ship was still fitting out in mid-1963.

Hu Tung

There is confirmation of the large new workshops in the north of the launching basin and the completion of the workshops on the southern end of the yard. It is not known whether they have all been equipped.

In 1962 this yard had on the slips 5, 80' MGB's, fishing vessels, a coastal tanker and a refrigerated fish transporter.

International Dock Yard

No known change in facilities.

In March 1962 there were 4, 80' MGB/MTB hulls, under repair or construction and a small freighter.

Kiangnan

In 1963 the yard is to build a 15,000 GRT river passenger cargo vessel and may build 800 ton tankers. Submarines reported on the slips are likely to be back for refit rather than new construction.

Wu Chang

No information on the former W class yard. Two new shipbuilding yards have been identified to the south of the creek. Current activity probably limited to river vessels.

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Item 10

New Whampoa, Canton

In 1962 construction continued of new facilities on the S.W. corner of Dane's Island. A dam has been built across an arm of the river to make an artificial harbor where filling in could provide slips or a launching way, and a large workshop has been completed. It is not known whether machinery and equipment have been installed.

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Item 11

Satellite Merchant Shipbuilding, 1962-63

By the end of 1963 it is expected that the tonnage of major merchant and fishing vessels constructed by the European Satellites will total 472,000 GRT representing an increase of about 40,000 GRT above the tonnage built in 1962. This increase in tonnage is the result of the production of more ships by Polish shipyards. Despite this increase in tonnage, only 117 ships are expected to be completed in 1963 as compared to 144 ships in 1962. This numerical decrease can be attributed to the construction of fewer ships in the smaller tonnage ranges, particularly fishing cutters, in 1963.

Of course, cargo ships are the principal product of the Satellite shipyards. In 1963, the tonnage of cargo ships constructed was above 336,000 GRT or 71% of the total GRT, an increase of about 51,000 GRT above the tonnage built in 1962. The other principal types, in order of tonnage produced, are fishing vessels, tankers, passenger ships and special service ships.

Poland is the leading shipbuilding country among the five European Satellites. Polish yards produced 56% of the total GRT completed by the Satellites in 1963, or 5% more than in 1962. In 1963 East Germany produced 34% of the total tonnage as compared to 40% in 1962. The other three Satellites, Bulgaria, Hungary and Rumania contributed about 3% each in 1962 and 1963.

One of the main features of Satellite shipbuilding is the serial production of all types of ships. In the past, serial production ranged from 2 ships to over 700 ships of a single class. The greatest number of merchant ships of one type serially built were the TELNOVSK Class of 1,200 GRT which were produced at Budapest, Hungary. Over 100 of these ships were built. This series is still being built but the class has been modified and is now known as the KEYLA Class of which 37 units are known to have been completed to date. Other classes of merchant ships built in large numbers include 73 units of the Polish-built DONBASS Class of 3,800 GRT and 76 units of the East German-built KOLOMNA/ANDIZHAN Class of 3,400 GRT. Of the tankers produced serially, the Bulgarian-built FEDYA GUBANOV Class of 3,820 GRT has currently reached 13 units. With respect to passenger ships, East Germany will complete the 20th and final unit of the MIKHAIL KALININ Class of 4,870 GRT in 1964. The greatest number of fishing ships of one type constructed serially was the medium trawler of

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Item 11 (Cont'd)

the SRT Class (265 GRT), of which several East German shipyards completed more than 700 units during the period 1948-58.

The largest merchant ships building in each Satellite country are as follows:

- 1) in Poland the BAUSKA Class tanker of 19,000 DWT and several types of cargo ships of 12,500 DWT and 14,500 DWT;
- 2) in East Germany the new IVAN FRANKO Class passenger ship of 18,000 GRT and several types of cargo ships in the 12,000 DWT range;
- 3) Bulgaria recently completed its first ship of significant size, a cargo ship of about 6,000 DWT;
- 4) in Rumania the largest ship built has been the GALATI Class cargo ship of 4,400 DWT.
- 5) Hungary continues to produce small cargo ships of 1,300 DWT.

A detailed account of the productivity of Satellite shipyards is shown in Table 1.

The greater part of the output by Satellite shipyards has always been and continues to be exported; the Soviet Union being the principal recipient. In 1962, the Soviet Union received 58% of the total GRT produced, and it is expected that the Soviet Union will receive about 62% in 1963. The total tonnage retained by the two leading Satellite shipbuilders, Poland and East Germany, has never exceeded one-third (1/3) of the total output of their shipyards. In 1962 both countries retained 30% of the total GRT; and in 1963 it is expected that Poland will retain 26% and East Germany 32%. The output by Bulgarian, Rumanian and Hungarian shipyards averaged about 16,500 GRT in 1963 as compared to 13,300 GRT in 1962. During 1962-63, these three countries exported about 75% of their shipyard production. Four of the Satellites, Poland, East Germany, Bulgarian and Hungary, export a lesser percentage of their total output to other Bloc and Free World countries. No ships are exported by Rumania, except to the USSR.

Future prospects of the shipbuilding industries, as seen by the shipbuilders in their respective Satellite countries, is that these industries will increase in scope, both in the size of vessels to be built and total annual output. Poland is planning the construction of tankers of 65,000 DWT each and bulk cargo ships of 23,000 DWT each. Poland also has set 1970 as the target date for beginning construction of nuclear-powered ships. Although East Germany produced less in 1963 than in 1962, production is expected to show modest increases in 1964 and subsequent years. Bulgaria and Rumania are scheduled to build cargo

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ships of 10,000 DWT in the immediate future. Although Hungary will continue to build small cargo ships a modest rise in annual output can be expected. It is significant to note that the orders on the books of several of the Satellite shipyards are expected to provide full employment until 1970. Further, the USSR will continue to be the primary customer of European Satellite shipyards.

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Table 1. Merchant and Fishing Vessels Constructed in European Satellites - 1962 and 1963

Shipyard		Poland - Merchant Vessels									
		1962					1963 (est.)				
Type and Class	No. of Ships	Name of Ship & Bldg. No.	Tonnage GRT	DWT	Built for	No. of Ships	Name of Ship & Bldg. No.	Tonnage GRT	DWT	Built for	Remarks
Gdansk Shipyard:	18		133,024	175,710	CChina	22		158,079	205,060		
Cargo (M. Novotko/B54)	3	GUO YI(25) LELEWEL(26) CIENFUEGOS(27)	27,261 9,709 7,817 9,735	33,930 11,769 10,500 11,660	CChina Poland Cuba	3	G. LINES(28) A. IGLESIAS(29) KONOPNICA(24)	29,181 9,735 9,711	35,090 11,660 11,770	Cuba Cuba Poland	Class terminated at Gdansk
Cargo (Sinferopol/B43)	4	SDMEROPOL(1) SLAVSKI(2) SLUTSKI(3) SOVETSKI(4)	37,376 9,344 9,344 9,344	49,820 12,455 12,455 12,455	USSR	3	SEMPALATINSKI(5) SUDZHA(6) NA(7)	27,582 9,344 9,344	37,365 12,455 12,455	USSR USSR USSR	This class building in two series. First series (B43) equipped with 7800 hp diesel engines while second series (B44) equipped with 9000 hp diesel engines. 7th unit in B43 series has not been confirmed. Both series to total 22 units.
Cargo (Murem/B44)						2	MUROM(1) NA(2)	18,700 9,350	25,000 12,500	USSR USSR	
Cargo (Sole/B514)	6	ALATYRLES(11) ANDOMALES(12) ANCARSLES(13) ABACURLES(14) ANADYRLES(15) BRYANSKLES(16)	27,828 4,638 4,638 4,638 4,638 4,638	37,230 6,205 6,205 6,205 6,205 6,205	USSR						This class building in two series. First series (B514) of 16 units is equipped with 4500 hp Sulzer diesels while second series (B45) is equipped with 5450 hp BMW diesels. Both series to total 61 units.
Cargo (Belomorskles/B45)	3	BELOMORSKLES(1) BOBRUVSKLES(2) BELOZERSKLES(3)	14,019 4,673 4,673	17,850 5,725 5,725	USSR	12	AMURSKLES(4) BRASLAVLES(5) ANGARLES(6) ALTAYLES(7) BALACHNALES(8) BUREYALES(9) BEREZINALES(10) KANDALKSHALES(11) SAYANLES(12)	56,076 4,673 4,673 4,673 4,673 4,673 4,673 4,673	70,725 5,725 5,725 5,725 5,725 5,725 5,725 5,725	USSR USSR USSR USSR USSR USSR USSR USSR	

Table 1 (Cont'd) Merchant and Fishing Vessels Constructed in European Satellites - 1962 and 1963

Poland - Merchant Vessels										
Shipyard	1962			1963 (est.)			Remarks			
	Type and Class	No. of Ships	Name of Ship & Bldg. No.	Tonnage	Built for	No. of Ships		Name of Ship & Bldg. No.	Tonnage	Built for
				GRT	DWT			GRT	DWT	
Tanker (Pauzka/B70)	2	BALAKLAVA(2) PROF.M.T.HUBER(3)	26,650 13,270	36,880 18,440	USSR USSR	2	PRIPYATLES(13) NA (14) SAKHALINES(15)	4,673 4,673 4,673	5,725 5,725 5,725	USSR USSR USSR
Ice-cabin Shipyard:	10		45,327	59,462		12	BALDOME(4) BALVI (5)	26,540 13,270	36,880 18,440	USSR USSR
Cargo (M.Nowotko/B54)	2	HANKA SAWICKA(6) SAM RATULANGI(7)	13,757 6,947	20,192 10,092	Poland Indo.	3	HADJI SALIM(8) ANDRZEJ STRUG(9) W.BRONIECKI(10)	20,701 6,813 6,944	30,300 10,100 10,100	Indo. Poland Poland
Cargo (Krynica/B55)	2	WISLICA(14) SZCZAWNICA(15)	6,800 3,400	10,800 5,400	Poland Poland					Class terminated.
Cargo (Oliva/B59)	1	ORNETA(9)	3,020 3,020	4,420 4,420	Poland					Class terminated.
Cargo/refrigerator (Grudziadz/B49)						3	GRUDZIADZ(1) GLOGOW(2) GRUBISZ(3)	2,540 3,180 3,180	13,050 4,350 4,350	New series. Number to be built is not known. Poland Poland
Cargo (Kolejarz/B512)						3	KOLEJARZ(1) REPUBLIKA(2) STOCZNOWNIEC(3)	31,740 10,580 10,580	43,500 14,500 14,500	New series of 17 units, 15 for Poland and 2 for Czech.
Cargo (Domayko/B516)	2	DOMAYKO(1) HEWELIUSZ(2)	11,400 5,700	17,360 8,680	Poland Poland	3	SNIADECKI(3) STASZIK(4?) ?SKLODOWSKI(5)?	17,100 5,700 5,700	26,040 8,680 8,680	Series of 11 units, all for Poland. Poland Poland Poland
Cargo/passenger (Tagaron/B450)	3	TOMUTI(5) TOBELO(6) TOKALA(7)	10,350 3,450 3,450	6,600 2,230 2,230	Indo. Indo. Indo.					Class terminated -- all 7 units for Indonesia.

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Table 1 (Cont'd) Merchant and Fishing Vessels Constructed in European Satellites - 1962 and 1963

Poland - Merchant Vessels									
Shipyard	Type and Class	No. of Ships	Name of Ship & Bldg. No.	No. of Ships	Built for	1962		1963 (est.)	
						GRT	Tonnage DWT	GRT	Tonnage DWT
Paris Commune, Odynia	Cargo	2		2		9,948	10,854	6,050	6,300
		3	WODNICA(10) WILA(11) WROZKA(12)		Poland Poland Poland	1,500 500 500	2,790 930 930		
Cargos (Andrzej Borowy/B458)	Cargo	5		5				6,050	6,300
Tanker (Ogre/B711)	Tanker	6				7,998	8,064	6,050	6,300
			OORE(1) YAMSK(2) OZERNOYE(3) OPALA(4) DVINOORSK(5) OZERSK(6)		USSR USSR USSR USSR USSR USSR	1,333 1,333 1,333 1,333 1,333 1,333	1,344 1,344 1,344 1,344 1,344 1,344	1,210 1,210 1,210 1,210 1,210 1,210	1,260 1,260 1,260 1,260 1,260 1,260
Fish Shipyard (Bokita/B475)	Cargo/cattle	1				492	527		
		1	BORUTA(2)		Poland	492	527		
Fish Base (Sawarodvinsk/B62)	Fish Base	6		7		24,483	16,848	29,340	18,640
		1	CHUKOTKA(11)		USSR	10,033	2,548	12,000	10,000
						10,033	9,548	12,000	10,000
Fish Base (Pioniersk/B64)	Fish Base	1		1					

Class terminated. All 12 units for Poland.

Class terminated. All 5 units for Poland.

Class terminated. All units deliv'd in 1962. USSR transferred two units to Indonesia

Two more units scheduled for 1964.

Class terminated. All 11 units for USSR.

New series. 15 units ordered by USSR. Poland to built 2 units for own fleet, 1965-66.

Table 1 (Cont'd) Merchant and Fishing Vessels Constructed in European Satellites - 1962 and 1963

Shipyard Type and Class	No. of Ships	Name of Ship & Bldg. No.	1962		1963 (est.)		Built for	Tonnage DWT	No. of Ships	Name of Ship & Bldg. No.	Built for	Tonnage DWT	Built for	Remarks
			ORT	DWT	ORT	DWT								
Warnow Shipyard, Warnemunde:	7		55,624	73,007	63,280	83,972			8					
Cargo	3	DIMITROVO(11)	21,795	29,262	29,060	30,012	USSR		4	DNEPRODZHERZHINSK (14)	USSR			Class terminated. All 17 units for USSR.
(Dzhankoy)		DAGESTAN(12)	7,265	9,753	7,265	9,753	USSR			DASHAVA(14)	USSR			"Dolgoschtschelye", as was
		DOLGOSCHTSHEL'YE (13)	7,265	9,753	7,265	9,753	USSR			DONSKOY(16)	USSR			"Dangara", converted to AGM
										DEDOVSK(17)	USSR			and renamed "Chumikan" & "Chazhma".
Cargo	3	MANSFELD(2)	25,827	33,480	17,218	22,320	EGER.		2	ESPENHAIN(5)	EGER.			Class terminated. All 6 units for EGER.
(Lubbenau/Type IX)		SENFTENBERG	8,609	11,160	8,609	11,160	EGER.			VOLKERODE(6)	EGER.			
		TRATTENDORF	8,609	11,160	8,609	11,160	EGER.							
Cargo	1	EDGAR ANDRE(1)	8,002	10,265	8,002	10,265	EGER.		1	ERNST SCHNEILLER(2)	EGER.			Class will total 14 units, 9 by end of 1965. All for EGER.
(Vyborg/Type VI)									1	VYBORG(1)	USSR			New Class. 20 units order by USSR.
Gun Shipyard, Stock:	19		55,256	66,410	37,220	39,499			12					
Edichan/Type II)	11	POLYARNYI(36)	38,005	48,125			USSR							Class terminated. All 46 units, including one for USSR Navy, delivered to USSR.
		RENI(37)	3,455	4,375			USSR							
		RAKVERI(38)	3,455	4,375			USSR							
		SYRVE(39)	3,455	4,375			USSR							
		YEYSK(40)	3,455	4,375			USSR							
		IMAN(41)	3,455	4,375			USSR							
		SOBOLEVO(42)	3,455	4,375			USSR							
		YEMETSK(43)	3,455	4,375			USSR							
		SIOULDA(44)	3,455	4,375			USSR							
		KYARDIA(45)	3,455	4,375			USSR							
		KHOLMOGORI(46)	3,455	4,375			USSR							

Table 1 (Cont'd) Merchant and Fishing Vessels Constructed in European Satellites - 1962 and 1963

Shipyard	Type and Class	No. of Ships	Name of Ship & Bldg. No.	1962		1963 (Est.)		Built for	Remarks
				GRT	DWT	GRT	DWT		
Cargo (Albatros)		3	BUSSARD (2) CONDOR (3) FALKE (4)	5,472 1,824 1,824 1,824	8,199 2,733 2,733 2,733	5,472 1,824 1,824 1,824	8,199 2,733 2,733 2,733	EGer. EGer. EGer. EGer.	16 to be completed by end of 1965 for EGer.
	Cargo (Iliri)	2	ILIRI BARI II	1,998 999 999	3,700 1,850 1,850	999 999	1,850 1,850	WGer. WGer.	WGer. firm ordered 5 to 6 ships. No further details on delay.
	Cargo (Povenets/Type 201)	6	POVENETS (1) NOVOVORONEZH (2) PERESLAVL ZALESKY (3) PYARNU (4) TCORNOALTAISK (5)? (NA)	22,356 3,726 3,726 3,726 3,726 3,726	26,250 4,375 4,375 4,375 4,375 4,375	22,356 3,726 3,726 3,726 3,726 3,726	26,250 4,375 4,375 4,375 4,375 4,375	USSR USSR USSR USSR USSR USSR	New series. Apparently has replaced the Andizhan class.
Cargo/training (Andizhan)		1	MERIDIAN (3)	4,374	3,083			USSR	
Research (Andizhan)		1	POLYUS (1)	4,700	3,043			USSR	
Coastal Ferry		1	HA LONG (19)	707	260			NViet.	
Crane Ship		1	WARNEMUNDE			6,592	3,450	EGer.	
Mathias Thesen, Wismar		3	?KALARI (1)	15,690	4,080	2,800	1,600	USSR	Class will terminate in 1964 All 20 units for USSR.
Passenger (Mikhail Kalinin)		3	N. KRUPSKAYA (16) ARMENIYA (17) BASHKIRIYA (18)	15,690 5,230 5,230 5,230	4,080 1,360 1,360 1,360	15,690 5,230 5,230 5,230	4,080 1,360 1,360 1,360	USSR USSR USSR USSR	

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Table 1 (Cont'd) Merchant and Fishing Vessels Constructed in European Satellites - 1962 and 1963

Shipyard	East Germany - Merchant Vessels									
	1962					1963 (est.)				
Type and Class	No. of Ships	Name of Ship & Bldg. No.	Tonnage	Built for	No. of Ships	Name of Ship & Bldg. No.	Tonnage	Built for	Remarks	Class
Peene Shipyard, Wolgast:			ORT	DWT			ORT	DWT		
Cargo (Nordstern)	5	PUTBUS(17) INSEL RIEMS(18) RERIK(19) STAVENHAGEN(20) UCKERMUNDE(21)	3,085 3,617 617 617 617	4,200 4,840 840 840 840	4	VITTE(22) VILM(23) WAREN(24) ZINNOWITZ(25)	2,468 617 617 617	3,360 840 840 840		Class terminated. 23 units for EGer., and 2 units for North Vietnam.
Elbe Shipyard, Boizenburg:	1	HAIPHONG(?)	309	200						
Tanker (TM Class)	2		21,915	8,010	14		34,090	12,460		
Stralsund Shipyard:	9		21,915	8,010	14		34,090	12,460		
Fish Factory Trawler (Tropik)		TROPIK(7001) TUKAN(7002) YEVPAORIYA(7003) KERCH(7004) TSEFEX(7005) TSEMTAVR(7006) KOZEROG(7008) YALTA(7009) FEODOSIYA(7007)	2,435 2,435 2,435 2,435 2,435 2,435 2,435 2,435	890 890 890 890 890 890 890		S.RUSTAVELI(7010) PEGAS(7011) ALUSHTA(7012) ALUPKA(7013) STRELETS(7014) GURZUF(7015) --(7016) --(7017) VOLOPAS(7018) KOREIS(7019) --(7020) --(7021) --(7022) --(7023)	2,435 2,435 2,435 2,435 2,435 2,435 2,435 2,435 2,435 2,435 2,435 2,435 2,435	890 890 890 890 890 890 890 890 890 890 890 890 890	USSR USSR USSR USSR USSR USSR USSR USSR USSR USSR USSR USSR USSR	Series to total about 65 units when program is completed. All for USSR, East German press reported that an additional 39 "Tropics" to be built for USSR. No further details.

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Table 1 (Cont'd) Merchant and Fishing Vessels Constructed in European Satellites, - 1962 and 1963

Shipyard	Type and Class	No. of Ships	Name of Ship & Bldg. No.	1962			1963 (est.)			Built for	Remarks
				Tonnage	Built for	No. of Ships	Tonnage	Built for	No. of Ships		
				GRT	DWT		GRT	DWT			
Fish Research	Mathias Thesen,	3		9,006	4,260	4	10,656	4,760			
	Fishmar:										
	Fish Factory Trawler	3	FRIEDRICH WOLF(3)	9,006	4,260	3	9,006	4,260			
	(Bertolt Brecht)		ERICH WEINERT(4)	3,002	1,420		3,002	1,420			
Fish Research			L.FUERNBERG(5)	3,002	1,420		3,002	1,420			
Peene Shipyard, Wolgast:		4		9,180	5,200	1	1,650	500			
Refrigerator (Bratsk)		4		9,180	5,200						
			KHASAN(7)	2,295	1,300						
			ELTON(8)	2,295	1,300						
			BASHKUNCHAL(9)	2,295	1,300						
Peene Shipyard, Tzenburg:			M.LOMONOSOV(10)	2,295	1,300						
Peene Shipyard, Tzenburg:											

Series to total 11 units
All for EGer.

Class terminated.

New class. 29 units
scheduled to be built for
EGer.

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Table 1 (Cont'd) Merchant and Fishing Vessels Constructed in European Satellites - 1962 and 1963

Shipyard	Type and Class	No. of Ships	East Germany - Merchant Vessels				1963 (est.)				Remarks
			Name of Ship & Bldg. No.	Tonnage	Built for	No. of Ships	Name of Ship & Bldg. No.	GRT	Tonnage	Built for	
Ernst Thaelman, Brandenburg:	tters	17		2,250	850						
		17	VINGA	2,250	850						
			WALLETT	148	50						
			BISCAYA	148	50						
			RIMON	148	50						
			RIMARO	148	50						
			TORON	153	50						
			NAJADEN	151	50						
			NIMROD	153	50						
			REX	154	50						
			SHAFTE	147	50						
			SVANIC	148	50						
			AKSEL BJORN	149	50						
			ELSE SOLVEIG	149	50						
			CATO	149	50						
			SIGFUS BERGMANN	155	50						
			SKARDSVIK	155	50						
			SAELFUR	155	50						
Latvi Shipyard:	Cargo	4		12,360	17,600	2		15,180	22,000		Original order was report at 10 units for Rumania.
		4		12,360	17,600	2		6,180	8,800		
			VICTORIA(5)	3,090	4,400		ORADEA(9)	3,090	4,400		
			CLIJ(6)	3,090	4,400		BACAU(?)	3,090	4,400		
			TIMISOARA(7)	3,090	4,400						
Cargo (Novy Donbass)		3		3,090	4,400			2,000	13,200		
							NOVY DONBASS(1)	3,000	4,400		USSR ordered six units. It is expected that additional orders will be made.
							NOVAYA KAKHOVKA(2)	3,000	4,400		USSR
							NOVY BUG(3)	3,000	4,400		USSR

(NOTE: In addition to the above, Turnu Severin Shipyard is building 4 ships, believed to be two units of the ARAD Class and two modified units of the ARAD Class. The names of these ships have been reported as CARANSEBES, CARANSEBES, ROMAN, PITESTI, and SICHISOARA. These four ships are not included in this report until further details become available.)

Table 1 (Cont'd) Merchant and Fishing Vessels Constructed in European Satellites - 1962 and 1963

Hungary - Merchant Vessels											
Shipyard	Type and Class Ship and Crane Works, Budapest:	No. of Ships	Name of Ship & Bldg. No.	GRT	Tonnage	Built for	No. of Ships	1963 (est.)		Remarks	
								GRT	DWT		
		<u>11</u>		<u>14,200</u>	<u>13,215</u>		<u>14</u>	<u>18,000</u>	<u>18,480</u>		
Cargo (Keyla)		10	SHKOTOVO(19) TARAKLIA(20) GALAL EL DESOUKI ADNAN EL MALKI TERIBERKA(23) YARGORA(24) ZEYA(25) UST' BOL'CHETSK (26) KOYDA(27) NARVA(28)	<u>13,000</u> 1,300 1,300 1,300 1,300 1,300 1,300 1,300 1,300 1,300	<u>12,650</u> 1,265 1,265 1,265 1,265 1,265 1,265 1,265 1,265 1,265	USSR USSR UAR UAR USSR* USSR USSR USSR USSR Indo.	<u>10</u>	<u>13,000</u> 1,300 1,300 1,300 1,300 1,300 1,300 1,300 1,300 1,300	<u>12,650</u> 1,265 1,265 1,265 1,265 1,265 1,265 1,265 1,265 1,265	Indo. USSR USSR USSR USSR USSR USSR USSR Indo. Indo.	Number of units on order by USSR is not known. * "Teriberka" transferred to Soviet Navy.
Cargo (?modified Keyla?)		2	SEGASTRAND SAGATUN	<u>2,600</u> 1,300	<u>2,600</u> 1,300		<u>2</u>	<u>2,600</u> 1,300	<u>3,300</u> 1,650	Norway Norway	Norway ordered 14 units to be delivered 1963-66.
Cargo (Hazam)		<u>1</u>	BORSOD	<u>1,200</u> 1,200	<u>1,265</u> 1,265	Hung.	<u>1</u>	<u>2,400</u> 1,200	<u>2,530</u> 1,265	Hung. Hung.	Number of units on order by Hungary is reported to be 2 per year.
			DUNAUVAROS					<u>1,200</u>	<u>1,265</u>		

Table 1 (Cont'd) Merchant and Fishing Vessels Constructed in European Satellites - 1962 and 1963

Bulgaria - Merchant Vessels										
Shipyard	Type and Class	No. of Ships	1962		Name of Ship & Bldg. No.	No. of Ships	1963 (est.)		Built for	Remarks
			GRT	Tonnage DWT			GRT	DWT		
Georgi Dimitrov, Varna:		<u>5</u>	<u>13,256</u>	<u>18,285</u>		<u>6</u>	<u>16,051</u>	<u>21,455</u>		No details on building program. (*)
Cargo (Sofia)		1			JISKRA(6)	1	<u>1,935</u>	<u>3,155</u>	Czech.	
Tanker (Oleg Koshevoi)		1			SOFIA(1)	1	<u>4,680</u>	<u>6,000</u>	Bulg.	New series. No details on building program.
Passenger (Georgi Dimitrov)		2	<u>11,460</u> <u>3,820</u> <u>3,820</u> <u>3,820</u>	<u>17,955</u> <u>5,985</u> <u>5,985</u> <u>5,985</u>	SHIRVAN NEFT SARUNCHI	2	<u>7,640</u> <u>3,820</u> <u>3,820</u>	<u>11,970</u> <u>5,985</u> <u>5,985</u>	USSR USSR USSR	No details on building program.
Passenger (Georgi Dimitrov)		2	<u>1,796</u> <u>898</u> <u>898</u>	<u>330</u> <u>165</u> <u>165</u>	NA (10) PITSUNDA(11)	4 ,	<u>1,796</u> <u>898</u> <u>898</u>	<u>330</u> <u>165</u> <u>165</u>	USSR USSR USSR	No details on building program.
Georgi Dimitrov, Varna:		1	<u>325</u>	<u>410</u>						* In April 1963, it was reported that Poland placed an order for sixteen (16) 3,200 DWT cargo ships for delivery 1964-1969, possibly the Polish designed B-451 class.
Cargo (Sofia)		1								

* In April 1963, it was reported that Poland placed an order for sixteen (16) 3,200 DWT cargo ships for delivery 1964-1969, possibly the Polish designed B-451 class.

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Item 11

Satellite Naval Shipbuilding, 1962-63

During 1962 and 1963 a significant amount of naval shipbuilding has taken place in East German and Polish yards. In East Germany ships totalling in excess of 10,000 tons standard displacement have been produced for naval use. The Polish Navy has been provided with ships with a total displacement of 7,000 tons by local yards; the first six GRADUS Class AGLs (each displacing about 1,000 tons) have been, or are being, built for the Soviet Navy.

Most construction in both countries has been of amphibious types, auxiliaries, and service craft. Only East Germany continues to experiment with patrol ship designs. It is expected that this same general pattern will continue into 1964. Almost all East German naval construction took place at the Peenewerft at Wolgast. Naval Construction in Poland was preponderantly at the North Yard of Gdansk.

<u>Shipyard</u>	<u>No. of Units</u>	<u>Class</u>	<u>Type</u>	<u>Total Tonnage#</u>	<u>Remarks</u>
<u>East Germany</u>					
<u>1962</u>					
Peenewerft	2	ILTIS	PT	30	Wolgast
Peenewerft	8*	LABO-100	LCU	2,000	
Volkswerft	1	OCEAN TRAWLER	AGS	508 GRT	Stralsund
Pennewerft	1	KARPF-2	AGL	270	
Pennewerft	6	JUGEND	APL	4,200	
Schiffswerft	2	IB'IS	YTR	248	Berlin

Standard displacement unless otherwise specified.

* May be 6 each year.

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Item 11 (Cont'd)

<u>Shipyards</u>	<u>No. of Units</u>	<u>Class</u>	<u>Type</u>	<u>Total Tonnage#</u>	<u>Remarks</u>
		<u>East Germany</u> <u>1963</u>			
Peenewerft	1	HAI-2	PC	270	
Peenewerft	4*	LABO-100	LCU	1,000	
Peenewerft	1	LABO-500	LCT	500	5 more scheduled.
		<u>Poland</u> <u>1962</u>			
Unknown	6	Unknown	YTL	1,500	
Navy Shipyard*	1	Single ship	YDT	100 GRT	Gdynia
North Yard*	2	GRADUS	AGL	2,000	Gdansk
Unknown	7	EICHSTADEN	ICP	70	
Paris Commune*	1	Unknown	MSF	500	Gdynia
North Yard	6	POLNOCNY	LSM	5,000	
North Yard	4	GRADUS	AGL	4,000	
Unknown	3	Unknown	YTL	750	

Standard Displacement unless otherwise specified.
* May be 6 each year.

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Item 12

European Satellite Shipyard Review

During the latter part of 1962 and 1963 most East German and Polish shipyards attempted to lower the cost of production by the acquisition of new equipment, the modification of some existing facilities, and by improvements in the flow of materials within the yards. Only at the Paris Commune Shipyard in Gdynia has there been a major addition to shipyard facilities.

Poland

In the past year the Stocznia Gdanska yard at Gdansk has built dry-cargo ships of the B-43, B-44, B-45, and B-514 series, B-70 series tankers, and four classes of fishing ships. Although recent modification of facilities are unknown at this time, about 90,000,000 zlotys were earmarked for investment in the yard during 1962, out of a total 500,000,000 zlotys planned for the period 1959 to 1965. About 60 percent of these funds are to go toward production facilities, and will probably result in the extension of some building ways, a new fabrication shop, new fitting-out shops, and modernization of the plate shop. The remainder will go for improvements to quays, warehouses, and grounds.

The North (Polnocna) Yard at Gdansk, adjacent to Stocznia Gdanska, has been building POLNOCNY-class LSM's and GRADUS-class AGL's. No important changes in facilities are known to have taken place recently. 30 million zlotys will be invested in the yard in 1963.

The Paris Commune yard at Gdynia has nearly completed its new ship-building facilities, which include a building dock of about 225 m. x 35 m. x 18 m. inside dimensions and a large assembly building. A 9,300 DWT dry-cargo ship, B-41, a prototype of a new series, is under construction in the dock, and is scheduled for launching in December 1963 at the time work on the dock gate and a 500-ton bridge crane is due to be completed.

It appears that an unidentified new minesweeper is under construction at the yard.

In the past year the yard has built B-458 series dry-cargo ships, and B-20 and B-23 series trawlers. The yard hopes to build 20,000 DWT tankers and 23,000 DWT ore carriers by 1965, and later 65,000 DWT tankers for export.

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Item 12 (Cont'd)

The A.Warski yard in Szczecin has constructed five classes of dry-cargo ships, and one class each of refrigerated cargo and passenger cargo ships during 1962-1963. Press reports claimed a saving of 400 tons of steel in the construction of the B-54 cargo ship ANDRZEJ STRUG, reflecting a possible design change in this series. The yard probably added in the past year a new 700-ton press and several automatic plate cutters.

East Germany

The Warnow-werft in Warnemunde has built in the past year Type X dry-cargo ships, Type IX and DZHANKOY-class bulk carriers, and one Type VI bulk and general cargo-carrier with large hatch covers. It was reported that the yard may also have fitted out some TROPIK-class fish factory trawlers built at Stralsund.

No major changes in facilities have been noted, but the yard may have a new plate de-rusting machine in operation. Studies are reportedly underway at the yard on the use of plastic piping in maritime ships.

The Neptun Werft in Rostock has built four classes of dry-cargo ships, a crane ship, a salvage ship, and a train ferry during 1962-1963. Significant new changes in facilities or in work methods are unknown.

The Volkswerft in Stralsund has continued production in the past year of TROPIK-class fish factory trawlers. A shiplift installed during 1962 is in operation for the building of these vessels.

The Mathias Thesen Werft at Wismar has built during 1962-1963 MIKHAIL KALININ-class passenger ships. BERTOLT BRECHT-class fish factory trawlers, and one fishing research ship. In June 1963 the yard launched the 19,000 GRT passenger ship IVAN FRANCKO for the USSR, the largest ship ever built in East Germany.

The yard reportedly hopes to install more modern equipment and to develop more economic building techniques, especially the prefabrication of larger ship sections.

The Peenewerft in Wolgast built NORDSTERN-class dry-cargo ships, BRATSK class refrigerator ships, and several classes of small naval craft in 1962-1963. The most important of the latter were LABO-100-class LCU's and one LABO-500-class LCT. No expansion of facilities are known to have taken place in the past year.

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Item 13

Bloc Imports of Maritime Ships
From Western Countries, 1962-63

The gross register tonnage of Maritime ships completed in 1963 is estimated to be about 259,000 tons or a decrease of about 30 percent over that for 1962. This decrease in completions is believed to be due principally to the completion of existing contracts. Both in terms of tonnage and number of ships completed for the Bloc, Finland led other Western countries

In 1963 some existing contracts for new ships were extended and new contracts were negotiated with deliveries of ships scheduled through 1965. The most notable aspects of the new agreements were the increased emphasis upon output from Yugoslav Yards, and the considerably increased emphasis upon fishing ships.

Construction of ships for the Bloc in 1962-63 are shown in the following table by shipyard, name, and class.

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Western Ship Construction for the Sino-Soviet Bloc
#By Ship and Class and by Shipyard, 1962-63

<u>Denmark</u>	<u>Shipyard</u>	<u>Name</u>	<u>Class</u>	<u>GRT</u> <u>1962</u>	<u>DWT</u>	<u>Remarks</u>
<u>Cargo</u>						
	Naksov	BELORETSK (1)	BELORETSK	10,650	13,930	BELORETSK Class to the USSR. A contract in 1963 for 2 ships similar to the BELORETSK for delivery in 1964.
	Naksov	BELOVODSK (2)	BELORETSK	10,650	13,930	
	Burmeister and Wain	KOSMONAVT (3)	BELORETSK	10,650	13,930	
	Burmeister and Wain	BELITSK (4)	BELORETSK	10,650	13,930	
	Odense	KRASZEWSKI (1)	KRASZEWSKI	9,500	14,270	KRASZEWSKI Class to Poland.
	Odense	DLUCOSZ (2)	KRASZEWSKI	9,500	14,270	
<u>Fishing</u>				<u>1962</u>		
	Burmeister and Wain	SKRYPLEV (1)	SKRYPLEV	4,700	2,560	Refrigerated fish factory ship for the USSR.
	Burmeister and Wain	VITUS BERING (2)	SKRYPLEV	4,700	2,560	
				<u>1963</u>		
	Burmeister and Wain	DAVYDOV (3)	SKRYPLEV	4,700	2,560	
	Burmeister and Wain	SOVETSK (4)	SKRYPLEV	4,700	2,560	

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<u>Shipyard</u>	<u>Name</u>	<u>Class</u>	<u>GRT</u> <u>1962</u>	<u>DWT</u>	<u>Remarks</u>
Crichton-Vulcan,					
Turku	KIMOVSK (2)	KRASNOGRAD	9,000	12,000	KRASNOGRAD Class to the USSR. The
"	KASIMOV (3)	KRASNOGRAD	9,000	12,000	contract includes 9 additional units.
"	KARACHAEVO-				Possibly 4 additional per an agreement.
"	CHERKESSIYA (4)	KRASNOGRAD	9,000	12,000	
"	KOROV (5)	KRASNOGRAD	9,000	12,000	
			<u>1963</u>		
"	KALININABAD (6)	KRASNOGRAD	9,000	12,000	
"	KANEV (7)	KRASNOGRAD	9,000	12,000	Still under construction, scheduled for
"	KASPIYSK (8)	KRASNOGRAD	9,000	12,000	1963 delivery.
"	KRASNOVIMSK (9)	KRASNOGRAD	9,000	12,000	Still under construction, scheduled for
					1963 delivery.
			<u>1962</u>		
Valmet, Turku	BAIKALLES (5)	IRKUTSKLES	2,600	3,350	Timber carried to the USSR. The contract
Valmet, Helsinki	INKURLES (6)	IRKUTSKLES	2,600	3,350	includes a total of 36.
F.W. Hollming,					
Rauma	IRBITLES (7)	IRKUTSKLES	2,600	3,350	
	IRSHALES (8)	IRKUTSKLES	2,600	3,350	
	IZEMALES (9)	IRKUTSKLES	2,600	3,350	
	KAMCHATSKLES (10)	IRKUTSKLES	2,600	3,350	
	KIEVSKLES (11)	IRKUTSKLES	2,600	3,350	
	KRASNOGORSKLES (12)	IRKUTSKLES	2,600	3,350	
	VOLOGDALES (13)	IRKUTSKLES	2,600	3,350	

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<u>Shipyard</u>	<u>Name</u>	<u>Class</u>	<u>1963</u>	<u>GRT</u>	<u>DWT</u>	<u>Remarks</u>
<u>Finland (Cont'd)</u>						
<u>Cargo</u>						
	IZHEVSKLES (14)	IRKUTSKLES		2,600	3,350	
	KARELYALES (15)	IRKUTSKLES		2,600	3,350	
	KOVDALES (16)	IRKUTSKLES		2,600	3,350	
	KOLYMALES (17)	IRKUTSKLES		2,600	3,350	
	KONGURLES (18)	IRKUTSKLES		2,600	3,350	
	IZHORALES (19)	IRKUTSKLES		2,600	3,350	
	ILMENLES (20)	IRKUTSKLES		2,600	3,350	
	IRTYSHLES (21)	IRKUTSKLES		2,600	3,350	
	PERMLES (22)	IRKUTSKLES		2,600	3,350	
<u>Tanker</u>			<u>1962</u>			
	RAUMA Repola	ALEKIN (21)		3,300	4,480	
	RAUMA Repola	ALJUSINE (22)		3,300	4,480	
	RAUMA Repola	ANAPA (23)		3,300	4,480	
	RAUMA Repola	ARTSIZ (24)		3,300	4,480	
	RAUMA Repola	LIJBERTSY (25)		3,300	4,480	
	RAUMA Repola	SINEGORSK (26)		3,300	4,480	
			<u>1963</u>			
	RAUMA Repola	ARAKS (27)		3,300	4,480	
	RAUMA Repola	APSHERONSK (28)		3,300	4,480	
	RAUMA Repola	EVENSK (29)		3,300	4,480	
	RAUMA Repola	ANIVA (30)		3,300	4,480	
	RAUMA Repola	ARGON (31)		3,300	4,480	
<u>Miscellaneous</u>			<u>1962</u>			
	Wartsila, Helsinki	INGUL (1)		5,900	3,130	
			<u>1963</u>			
	Wartsila, Helsinki	YANA (2)		5,900	3,130	

Cable ship to the USSR. An additional contract has been signed for a third ship with delivery in 1965.

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<u>Finland (Cont'd)</u>	<u>Shipyard</u>	<u>Name</u>	<u>Class</u>	<u>GRT</u>	<u>DWT</u>	<u>Remarks</u>
<u>Miscellaneous</u>						
			<u>1962</u>			
	Valmet, Helsinki	C-214		2,000	2,800	Non-self propelled barracks barge to the USSR. A contract in 1962 for 5 additional ships for delivery in 1964-65.
	Valmet, Helsinki	C-215		2,000	2,800	
	Valmet, Helsinki	C-216		2,000	2,800	
			<u>1963</u>			
	Valmet, Helsinki	C-217		2,000	2,800	
	Valmet, Helsinki	C-218		2,000	2,800	Probably complete.
	Valmet, Helsinki	C-219		2,000	2,800	Probably complete.
	Valmet, Helsinki	C-220		2,000	2,800	Probably complete.
	Sand Vikens	NA	MOSCOW	9,425	4,150	Ice breaker under construction for the USSR with delivery in 1965.
			<u>1962</u>			
	Valmet, Turku	KAPITAN NOCHLIN (1)		1,152	-	Complete order of 7 tugs.
	Valmet, Turku	URAGAN (2)				
	Valmet, Turku	RESHITEL'NY (3)				
	Valmet, Turku	STEREGUSHCHIY (4)				

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Shipyard Name Class CRT DMT Remarks

Finland (Cont'd)

Miscellaneous

Valmet, Turku BESSTRASHNIY (5)
Valmet, Turku NA (6)
Valmet, Turku NA (7)

1963

France
Fishing

NA

NA

NA

1963

7,800

4,250

A contract with the USSR for 3 refrigerated fish factory ships for delivery in 1964-65. 4000 HP. 423 LOA 3.5.4 diesel-electric.

Italy
Tanker

Ansaldo, Genoa LEONARDO DA VINCI (1)

1963

LEONARDO DA VINCI

33,600

48,000

Tankers for the USSR.

1964

Ansaldo, Genoa FEDOR POLETAYEV (2)

LEONARDO DA VINCI

33,600

48,000

Ships under construction but scheduled for delivery in 1963-64. The contract includes 4 additional ships.

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<u>Shipyard</u>	<u>Name</u>	<u>Class</u>	<u>GRT</u>	<u>DWT</u>	<u>Remarks</u>
<u>Netherlands</u> <u>Fishing</u>		<u>1963</u>			
De Schelde, Vlissingen	NA	NA	NA	2,600	Contract with the USSR in 1963 for 4 refrigerated fish factory ships for delivery in 1965.
<u>Sweden</u> <u>Tanker</u>		<u>1962</u>			
Gavle, Stockholm	TUKUMS (2)	ELGAVA	3,100	4,130	ELGAVA Class to the USSR.
<u>Fishing</u>		<u>1963</u>			
Gotaverken Lindholmen Vodevalla	NA	NA	NA	7,800	Contract with the USSR in 1963 for 10 refrigerated fish transports for delivery in 1964-65.
<u>Yugoslavia</u> <u>Cargo</u>		<u>1962</u>			
Split, Split	NOWAWYJSKI (6)	CHOPIN	7,280	10,700	CHOPIN Class to Poland.
Split, Split	WIENIAWSKI (7)	CHOPIN	7,280	10,700	
3-May, Rijcka	KOCHANOWSKI (2)	JOSEF CONRAD	7,200	10,190	JOSEF CONRAD Class to Poland.
3-May, Rijcka	WYSPIANSKI (3)	JOSEF CONRAD	7,200	10,190	
		<u>1963</u>			
Uljanik, Pula	NA	NA	9,000	12,000	Contract with the USSR in 1963 for 10 cargo ships for delivery in 1964-66.
<u>Tanker</u>		<u>1963</u>			
3-May, Rijcka Split, Split	NA	NA	15,000	20,800	Contract with the USSR in 1963 for 15 tankers for delivery in 1964-66. (7 from 3-May, 8 from Split.)

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Item 14 Part I

The Growing Power of the Soviet Maritime Fleet, 1959-1965

This item represents an attempt to combine past, present and future production of maritime cargo ships and tankers over 1,000 GRT, whether built in Bloc or Western countries into a cohesive ship acquisition picture, and to determine the economic expenditures involved, for the Seven Year Plan, 1959-65.

The DWT characteristics of the cargo and tanker fleet as of the end of 1958,* the total Soviet ship acquisition program for 1959-65, and an assumed attrition rate** for each type of ship, has been combined to estimate a theoretical fleet size as of the end of the Seven Year Plan.

* does not include refrigerator ships, passenger ships, combination passenger-refrigerator ships, fishing ships, factory ships, or any ferry type or miscellaneous ships, which would considerably expand the total number and DWT of the cargo fleet. Second hand ships are included for this year but are not included for the 1959-65 period. Most of the aforementioned ships are excluded because of the small limited use outside of the fishing fleet, or because of the small amount of DWT involved, and because these types are not considered in the 1959-65 new ship acquisition program.

** Taken from a translation of a Soviet book entitled "USSR Sea Transportation" originally edited by V.G. Bakayev, and S.M. Bayev, (Bakayev is the present Minister of the Maritime Fleet) wherein it is stated that on the basis of research by the Central Scientific Research Institute of the Maritime Fleet the service life of dry cargo ships has been fixed at 25 years, and tankers 20 years. These figures have been used for theoretical estimates. However, past practice by the USSR indicates that ships may be in use many years longer than the service life and therefore would have the effect of increasing the size of the fleet by 1966.

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Total New Ship Acquisition:

Only one goal was announced for the Seven Year Plan that can be related to an overall shipping effort: "the total tonnage* of the maritime fleet will double." This phase is typical of Soviet ambiguity in official plan pronouncements, nevertheless it may be taken at face value and used as a general yardstick of accomplishment.

In the seven year period 1959-65 the USSR maritime fleet will receive from all sources about 600 new cargo ships and tankers totaling 3.9 million GRT (5.2 million DWT) valued at more than \$2.7 billion. These figures can be broken down into about 455 cargo ships of 2.3 million GRT (2.9 million DWT) and about 145 tankers of 1.6 million GRT, (2.3 million DWT), requiring an expenditure of about \$1.9 billion for cargo ship construction and about \$0.8 billion for tanker construction. Technically, not all of these ships will go to the maritime fleet for reasons such as use as a naval auxiliary, or relegation to the fishing fleet, nevertheless the expenditures must be made.

Of the total number of new ships to be acquired by the USSR during 1959-1965, about 76 percent will be cargo ships and about 24 percent will be tankers.

The percentage of number and value of ships to be received by the USSR from all sources is as follows:

<u>By Number</u>	<u>USSR Built</u>	<u>Other Bloc Built</u>	<u>Non-Bloc Built</u>	<u>Total</u>
Cargo ships	19	58	23	100
Tankers	26	21	53	100
<u>By Value</u>				
Cargo ships	23	49	28	100
Tankers	32	10	58	100

* Assumed to mean DWT.

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Comparison of Bloc and Non-Bloc Construction

Cargo Ships

As shown in the above tabulation, 81 percent (by number) of the cargo ships the Soviet Union will acquire during 1959-65 will come from other bloc and non-bloc countries. Of this percentage, other bloc countries will contribute 58 percent and non-bloc countries will deliver 23 percent. In terms of numbers and tonnage, the bloc 58 percent represents 265 ships of 1.0 million GRT (1.3 million DWT) valued at \$960 million. The non-bloc 23 percent represents 104 ships of about 590 thousand GRT (765 thousand DWT) valued at about \$540 million. Total Soviet cargo ship imports aggregate 369 ships of 1.6 million GRT (2.1 million DWT) valued at more than \$1.5 billion.

Tankers

In the tanker category, 74 percent (by number) of the total to be acquired by the Soviet Union during 1959-65 will come as imports from other bloc and non-bloc countries. Of this percentage, non-bloc countries will deliver 53 percent and other bloc countries only 21 percent. In terms of numbers and tonnage, the non-bloc percentage represents 75 tankers of 960 thousand GRT (1.4 million DWT) valued at about \$458 million, and the other bloc countries percentage represents 30 tankers of 118 thousand GRT (167 thousand DWT) valued at about \$80 million. Total Soviet import of tankers will amount to about 105 ships aggregating 1.1 million GRT (1.6 million DWT) valued at about \$540 million.

Total Shipbuilding Effort

Of the total of about 600 ships to be built during 1959-65, the Soviet Union will build 124 ships or about 21% of the total. This construction by the USSR will amount to about 30% of the tonnage and will require an outlay of about \$700 million or 26% of the total value of new ship acquisitions from all sources during the plan years.

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Comparing total GRT to be delivered, the following tabulation shows that the Soviet Union will construct about the same amount of GRT as she will receive from other bloc countries, and that the imports from non-bloc or western countries will exceed this amount.

	GRT (1,000)		
	<u>Soviet Built</u>	<u>Other Bloc Built</u>	<u>Non-Bloc Built</u>
Cargo Ship	650	1,027	588
Tanker	535	118	960
Total	<u>1,185</u>	<u>1,145</u>	<u>1,548</u>

Ranked according to GRT produced, the results are as follows:

	<u>Total Ships</u>	<u>1,000 GRT</u>	<u>Avg. GRT Per Ship</u>	<u>Percent of Total GRT</u>
<u>Bloc</u>				
USSR	124	1,185	9,555	30
Poland	97	542	5,585	14
E. Germany	101	436	4,315	11
Hungary	72	92	1,275	2
Bulgaria	20	59	2,950	1
Rumania	5	17	3,400	1
	<u>419</u>	<u>2,331</u>	<u>5,565</u>	<u>59</u>
<u>Non-Bloc</u>				
Japan	28	542	19,355	14
Finland	114	460	4,035	12
Italy	7	222	31,715	5
Yugoslavia	15	190	12,665	5
Denmark	8	83	10,375	2
Netherlands	2	33	16,500	1
W. Germany	3	12	4,000	1
Sweden	2	6	3,000	1
	<u>179</u>	<u>1,548</u>	<u>8,650</u>	<u>41</u>
Total	<u>598</u>	<u>3,879</u>		<u>100</u>

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Reasons for Soviet Reliance on Western Shipbuilding

The economic reasons for continued Soviet import of ships built by Western countries are many and varied. The following are considered pertinent to the subject; they are not necessarily listed in order of importance;

1. Depressed conditions of shipbuilding market in the West with future prospects not too good -- Soviets have the advantage of Western countries competing with each other for contracts to help ease the unemployment problem; conversely, they can create an unemployment problem at certain Western shipyards by denying contracts.
2. World market prices at convenient credit terms (5 years or more) are available from the West.
3. The bloc as a whole seems unable to compete with the West -- it is less efficient, has less flexibility, less experience, and a limited capacity or ability to produce many ship components, therefore the USSR goes elsewhere. In short, the West has a good product. In spite of this, the important bloc shipbuilding nations (Poland and East Germany) are more or less dependent upon the USSR for shipbuilding orders.
4. In regard to the USSR itself, it is, for maritime shipbuilding purposes, in the same boat as the European Satellites -- less efficient with its resultant higher costs, and has shown a reluctance to produce the high horsepower marine diesel engines required in modern maritime ship propulsion, although there is some evidence that this latter situation is now being remedied.
5. The Soviet Union in the recent past has devoted and will continue to devote a significant portion of its total shipyard facilities to the construction of naval ships. In this sector of the shipbuilding industry they are not less efficient, presumably produce propulsion equipment (including nuclear) and other necessary ship components on a basis comparable to Western countries.
6. That Soviet demand for ships is high is indicated by her continued purchases of second-hand ships, ship chartering activities, and new ship contract negotiations with the West. While Soviet demand for ships remains high, and it appears that it will until 1980, (when the total tonnage of the Soviet merchant fleet will be approximately 5-6 times the 1960 level) shipbuilding activity for the USSR can be expected to take place in Western countries.

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Size and Composition of the Maritime Fleet

At the end of 1958 (or 1 January 1959) it is estimated that the Soviet cargo and tanker fleet consisted of about 610 ships totaling 3.2 million DWT. Of this total, 513 ships of 2.4 million DWT were cargo ships and 97 ships of 806 thousand DWT were tankers. By the end of 1965 it is estimated that the cargo fleet will increase to 690 ships of 3.8 million DWT, an increase in DWT of about 56% over 1958. The tanker fleet by the end of 1965 will consist of 217 ships of 3.0 million DWT, an increase in DWT of about 270 percent over 1958. The combined cargo and tanker fleet, by the end of 1965 will aggregate 907 ships of 6.7 million DWT, an increase in DWT of 110%, thus indicating fulfillment of the Seven Year Plan target of "doubling the tonnage" of the maritime fleet.

The average DWT of cargo ships in 1958 was about 4,880 tons and by the end of 1965 will have increased to about 5,575 tons, an increase of about 14% over 1958. The average DWT of tankers in 1958 was about 8,340 tons and by the end of 1965 will have increased to 13,675 tons, an increase of about 64% over 1958. The increases in average DWT of cargo ships and tankers by the end of 1965 is a direct result of a larger ships to be added to the maritime fleet during 1959-65,* and this increase in average DWT for cargo ships and tankers will manifest itself in increased cargo carrying capacity. The graphs show the DWT characteristics of the cargo and tanker fleet in 1958 and 1965, including new ship acquisition and attrition during 1959-65, within a breakdown of numbers of ships in individual DWT range grouped in thousands.

The makeup of the cargo and tanker fleet will also be changed in 1959-65 period as compared with 1958. As regards cargo ships, the greatest growth in numbers of ships will be in the 1,000-6,000 DWT range. This group in 1958 consisted of 374 ships of 1.2 million DWT but by the end of 1965 will consist of 504 ships of 1.7 million DWT, a net increase of 130 ships with 540 thousand DWT. All groups within the 1,000-6,000 DWT range will expand except one, the 2,000-3,000 DWT group. No ships of 2,000-3,000 DWT will be built during the period 1959-1965. In the 4,000-5,000 DWT group 82% of the ships will be new ships.

* In this period the average DWT of new cargo ships and tankers to be added to the maritime fleet will be 6,390 tons and 16,410 tons, respectively.

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In the 6,000-10,000 DWT range the 1958 cargo fleet size was 89 ships of 703 thousand DWT. By the end of 1965 the total will be 73 ships of 570 thousand DWT a net decrease of 16 ships of 135 thousand DWT. In the 6,000-7,000 DWT group all ships will be new ships; in the 8,000-9,000 DWT group there will be an increase of about 50,000 DWT, and in this group more than 80% will be new ships. The 9,000-10,000 DWT group, as in the case of the 2,000-3,000 DWT group apparently is expendable and no ships of 9,000-10,000 DWT will be built during 1959-1965.

In the 10,000-16,000 DWT range the 1958 cargo fleet size was only 50 ships of 526,000 DWT. Nearly all of these ships were congregated in the 10,000-11,000 DWT group. By the end of 1965 the total will consist of 113 ships of 1.5 million DWT and the overwhelming majority of these will be of new construction. The 10,000-11,000 DWT group will be drastically reduced by the end of 1965, but the greatest increases will be in the 12,000-13,000 DWT group (51 ships of 620 thousand DWT) and in the 15,000-16,000 DWT group (30 ships of 475 thousand DWT. All of these ships will be of new construction and are the most popular size ships.

The overall net increase in 1965 over 1958 of all cargo ships will be 177 ships totaling 1.3 million DWT. By numbers of ships, about 66% of the 1965 cargo fleet will be less than 10 years old, and by DWT 77% of this fleet will be less than 10 years of age.

In the case of tankers the greatest growth in numbers of ships will be in the 3,000-5,000 DWT range. This group in 1958 consisted of only 8 ships totaling about 35 thousand DWT but by the end of 1965 will consist of 71 ships of about 310 thousand DWT a net increase of 63 ships with 274 thousand DWT. These ships constitute the bulk of the 1,000-11,000 DWT range. No ships will be built in the 8,000-11,000 DWT range during 1959-1965.

In the 11,000-12,000 DWT range will be found the largest number of tankers and resultant tonnage for one single DWT range at the end of 1965, a reflection of Kazbek class construction 66 tankers of about 755 thousand DWT.

Only 1 ship of 13,000 or more DWT existed in the Soviet tanker fleet of 1958. By the end of 1965 there will be 57 ships of 13,000 or more DWT totaling 1.9 million DWT, or about 63% of the tanker fleet.

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The overall net increase in 1965 over 1958 of all tankers will be 120 ships totaling 2.2 million DWT. Of this net increase 12 ships will be in the 48,000-49,000 DWT range comprising 577 thousand DWT or about 26% of the net increase in DWT; 12 ships will be in the 35,000-36,000 DWT range totaling 420,000 DWT or about 19% of the net increase in DWT. Seven tankers in the 29,000-30,000 DWT range and 6 tankers in the 34,000-35,000 DWT range will each consist of about 10% of the overall net increase.

By numbers of ships, about 65% of the 1965 tanker fleet will be less than 10 years old, and by DWT about 79% of this fleet will be less than 10 years of age.

Propulsion

Diesel

Probably the weakest link in the Soviet maritime shipbuilding structure is the design and production of high horsepower low r.p.m. marine engines. However, there appears to be no need for the Soviets to develop native marine diesels when efficient, reliable, and perfected foreign engines can be produced in the USSR under license. In fact, 2 new classes of Soviet-cargo ships that first appeared in 1962, the POLTAVA and the VYTEGRALES, were equipped with marine diesel propulsion units built at the Bryansk Machine Building Plant under license of the Danish firm Burmeister and Wain. The POLTAVA has a 9,800 hp engine and the VYTEGRALES has a 5,850 hp engine. In early 1963 it was reported that the Bryansk plant was building a 13,500 hp diesel engine (for eventual series production) which again probably is done under license. This engine may be for the PEREKOP class cargo ship.

Steam Turbine

Only one class of cargo ships, the LENINSKIY KOMSOMOL, is constructed in the USSR with steam turbine propulsion, and no cargo ships are being built in bloc or non-bloc countries for the USSR with steam turbine propulsion. On the other hand, large tankers building during 1959-65 in the USSR, the PEKIN and SOFIYA classes, have steam turbine propulsion.

Gas Turbine

Gas turbine propulsion is the newest innovation in marine propulsion systems but has had little application up to the present in Soviet Maritime shipbuilding. The only class of maritime ship built in

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the USSR with gas turbine propulsion is the PAVLIN VINOGRADOV timber carrier. However, while the ship itself is built in Leningrad the gas turbine propulsion units are produced in France and exported to the Soviet Union.

A native Soviet gas turbine known as GTU-20 was mentioned in the press a few years ago as the propulsion unit for a new tanker. It now seems that this 13,000 hp gas turbine unit will go into the LENINSKIY KOMSOMOL class cargo ship as latest reports indicate a gas turbine variant of this class ship will be produced prior to the end of the Seven Year Plan.

Nuclear Propulsion

Little information is available in the nuclear propulsion field concerning maritime shipbuilding activities or plans except for vague general statements. It has been reported that another nuclear powered icebreaker larger than the Lenin is in the planning stage, and that there were plans for a nuclear powered tanker which have been cancelled. In November 1962, a Soviet radio broadcast stated that in the next 10 years the USSR maritime fleet would receive a series of fast atomic powered cargo ships. This broadcast also stated that many difficulties would have to be overcome before the Soviet Union had a really economic, compact, lightweight atomic power unit.

In the Soviet Union as in other countries of the world it is believed that nuclear ships are still too expensive to construct and too costly to maintain, except as in the case of the LENIN and the SAVANNAH as prestige items. No nuclear propelled ships will be delivered to the maritime (cargo and tanker) fleet during the Seven Year Plan, 1959-1965.

General

The variety of different types of ship propulsion added to the Soviet maritime fleet during 1959-65, may eventually result in complicated repair and overhaul problems, as indeed the growth of the fleet itself will compound these repair and overhaul problems. The USSR may be forced to improve, expand, or construct ship repair yards or to "farm out" ship repair work to Western shipyards -- a process which generally has been avoided by the Soviets in recent years for economic reasons, political reasons, or both.

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Table 1

Summary of Number, Tonnage, Value and Source of Acquisition
of New Maritime Cargo Ships and Tankers by the Soviet Union
1945-1965

<u>Bloc</u>	<u>Cargo Ships</u>				<u>Tankers</u>			
	<u>No.</u>	<u>GRT</u> <u>(1000)</u>	<u>DWT</u> <u>(1000)</u>	<u>Value</u>	<u>No.</u>	<u>GRT</u> <u>(1000)</u>	<u>DWT</u> <u>(1000)</u>	<u>Value</u>
USSR	87	649.6	815.7	444.8	37	535.2	751.9	255.1
Poland	87	482.3	629.7	452.4	10	59.3	83.7	31.4
East Germany	101	346.2	548.2	375.9	0			
Hungary	72	92.4	110.5	115.2	0			
Bulgaria	0				20	59.0	83.4	50.0
Rumania	5	17.0	20.9	16.5	0			
Total Bloc	<u>352</u>	<u>1677.5</u>	<u>2125.0</u>	<u>1404.8</u>	<u>67</u>	<u>635.5</u>	<u>919.0</u>	<u>336.5</u>
<u>Non-Bloc</u>								
Denmark	8	82.9	106.2	64.4	0			
Finland	78	341.7	467.3	354.6	36	118.8	161.3	97.2
West Germany	3	12.2	13.3	14.4	0			
Italy	0				7	222.3	319.0	81.5
Japan	8	88.5	94.5	56.8	20	453.1	706.7	196.4
Netherlands	0				2	32.7	49.9	15.0
Sweden	0				2	6.2	8.3	5.4
Yugoslavia	7	63.0	84.0	52.5	8	127.4	181.9	61.9
Total Non-Bloc	<u>104</u>	<u>588.3</u>	<u>765.3</u>	<u>542.7</u>	<u>75</u>	<u>960.5</u>	<u>1427.1</u>	<u>457.4</u>
Grand Total Bloc and Non-Bloc	<u>456</u>	<u>2276.8</u>	<u>2890.3</u>	<u>1947.5</u>	<u>142</u>	<u>1614.0</u>	<u>2346.1</u>	<u>793.9</u>

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Item 14, Part II

The Impact of the Growing Soviet Bloc
Merchant Marine on Free World Shipping

Introduction

A year ago, our Office addressed on the subject of the Patterns and Prospects of Sino-Soviet Bloc Merchant Marine Transport. discussed the prospective strength of the Bloc merchant fleets in future years and their capability eventually to cause losses to the world's liner operators. also discussed the relative growth rates of the Bloc fleets and of Bloc trade and the implications that a divergency in these two growth rates would have on the world shipping industry in the future. These latter two factors will determine the amount of additional shipping business that the Bloc will be giving to the Free World fleets (or taking from them) in the future. Bloc fleets grew impressively during the past year. Bloc trade has also grown impressively.

In the light of developments in the past few years we would like to review the situation and trends in world shipping and examine the progress that the Bloc is making in the development of both its fleet and trade to see if the tentative conclusions which we reached last year could still be considered valid. We can profit by beginning with a discussion of the world shipping situation.

World Shipping Situation

A large part of the world fleet is owned or controlled on very long term contract by oil companies, steel companies, and the like, and this shipping does not actively compete in the world market. The remainder of the world fleet is for hire and can be divided into two categories of shipping services -- liner services and tramp services. Ships in the liner service are common carriers, providing pre-scheduled services for shipment of goods in less than shipload amounts from any and all shippers. The shipowners engaged in the liner trades send their ships along their accustomed trade routes, stopping at established ports-of-call in accordance with a published time schedule. Their agents at ports-of-call book space for export cargoes. Liner service, like railroad service, has the characteristics of a natural monopoly. Unrestricted (cut-throat) price competition would lead to irregularity of service, badly distributed sailings, superannuated and badly maintained vessels.

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The need for sufficient monopoly control of the freight rate structure to provide reliable, regularly scheduled high-quality common carrier service for shippers is universally recognized. Since it is an international business and cannot be regulated by national governments it has become, because of the mutual interests of the shipowners, self-regulated through a system of cartels, called conferences. The conference, which is established for each of the trade routes, sets the freight rates for that route, and in its own interest it does not set them so high that it would profit any member of the conference to withdraw from the cartel and cut the rate.

In tramp service, the hire, or charter, of entire ships for one or more voyages is accomplished through ship and cargo brokers. The market is free and although a lot of higgling is done, the rates are ultimately determined by demand and supply -- demand for ships to move given cargoes at given times between given shipping areas of origin and destination, and the supply of ships of the desired size that are available at the required time and place. The market is extremely sensitive and freight rates fluctuate sharply under the impetus of prospects for much or little cargo. Witness the upward pressure on rates of the recent orders for Canadian wheat which were placed by the USSR. The market has also long-run tendencies which are the result of the long-run relationship between the total amount of available world tramp tonnage and the total amount of world bulk cargoes.

the world shipping industry has been in a depressed state since the Suez crisis inspired a rash of shipbuilding. World seaborne trade has not increased rapidly enough since 1956 to offset the added tonnage and increased efficiency of the new-builds. Although fluctuations have occurred in various trades at various times, the long-term trend in world charter rates in the tramp and tanker markets generally has not yet recovered to even the 1953 position. In the meantime, of course, port, cargo handling and crew costs are rising, making it all the more difficult for the marginal shipowners to stay in business.

The liner conferences are afforded a certain amount of control over freight charges and port surcharges in the scheduled liner services, although they do not control the volume of goods moving on the trade routes or the number of ships engaged in competing for it. In tramp and tanker services the market has been unfettered and keen competition among shipowners, because of the redundancy of ships, has established freight rates so low that the marginal operators cannot always cover fixed costs and sometimes not even their variable costs. In an effort to raise tramp and

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tanker freight rates under conditions of excess tonnage, schemes for the control of the effective supply of ships on the shipping market have been worked out and are now being placed in effect by both the dry cargo tramp owners and the independent tanker owners. These are known as tonnage stabilization schemes and simply require the participants to pay charges, based on their total active tonnage, into a fund to be used to subsidize participants to keep a certain amount of tonnage laid up. The cost of subsidizing themselves to keep their redundant tonnage off the market is to be covered by the additional revenues to be realized from the expected increase in freight rates. It is important to keep in mind that the nice balance between the amount of world trade and the size of the world fleet, which is necessary to maintain freight rates at a normally profitable level, can be upset by relatively small uncompensated increases in the size of the fleet or in the amount of trade. Currently we have an illustration. The impact of the recent Soviet orders for wheat from North America and Australia, which are an absolutely new increment to world trade and which are to be carried out in a very short period of time, had raised freight rates in the grain trades by 25 percent during the month of September and generally raised all tramping freight rates including the cost of new-time charters.

The difficulty of maintaining a balance between world ship tonnage and world trade cargoes, as seen from the shipowners viewpoint, is constantly aggravated by the efforts of the shipbuilders to stay in business. It is amusing to see how the trade journals that represent both shipowners and builders struggle with their editorial policies. It has been estimated that the world shipbuilding plant can currently completely replace the world fleet every ten years; but ships have an average useful life of 20 years. Building ships for the Bloc is not a solution acceptable to the Free World shipowners, as we shall now see.

The Carriage of the Bloc's Foreign Ocean Trade

If a decisive number of the Free World's tramp owners and independent tanker owners are able for a time to support higher freight rates only by the expedient of artificially stabilizing the supply of world tonnage, what effect will the ship acquisition and foreign trade programs of the Bloc countries have on their (Free World) program to improve earnings? We can start this discussion by acknowledging that an important amount of the Free World ocean freight business consists of carrying the export-import trade of the Sino-Soviet Bloc on Sino-Soviet account. Free World ships also carry Sino-Soviet foreign trade on the account of the trading partners of the Sino-Soviet Bloc. But it is the former trade -- that

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controlled by the Sino-Soviet Bloc -- for which the Bloc determines whether a Bloc ship or a ship chartered from the Free World shall be employed. The transportation of Bloc foreign trade is preponderantly controlled by the Bloc side of the international transactions by the simple strategem of making its purchases F.O.B., country of origin, and its sales C.I.F., country of destination. Only a shipping agreement could modify the degrees of control over the movement of the goods which the conditions of the sale would give each of the trading partners.

By controlling the transportation of as much of their trade as they can, the Bloc countries ensure full employment for their merchant shipping and are able to regard that amount of trade that they control, and for which they now charter Free World shipping, as potential business for an increased fleet. Whether this is the main reason for controlling the movement of so much of their own trade at this time or not, I don't know, but it is a factor stimulating to the growth of the Bloc fleets and so we must be conscious of it.

The Bloc countries (with the exception currently of Communist China) are striving to reduce their dependence on Free World shipping by building up their own merchant fleets. In this they have made remarkable progress in the last few years and their plans forecast equally remarkable progress in the future. So far, the level of world freight rates has not been affected by the increasing of the Bloc fleets because a parallel increase in Bloc ocean trade has taken place. We must look ahead and compare the estimated future increases in Bloc fleets with the estimated future increases in Bloc trade to see the possible impact on Free World shipping. Because of the control the Bloc has over the movement of its foreign trade, it has the ability to keep its own ships employed while the growth of its fleets adds to the general redundancy of world shipping.

. The Effects of World Shipping of the Self-Sufficiency of
the Soviet Bloc Merchant Marine

Figure 1 shows the anticipated growth in the world active fleet and in the Bloc fleet. It can be seen that the Bloc fleet is to grow rapidly after 1960, not just absolutely but also as a percentage share of the world fleet. Whereas in 1950 and 1955 it amounted to only 3 percent of the world fleet, it rose to 4 percent in 1960 and is expected to amount to 6 percent in 1965, 9 percent in 1970 and 11 percent in 1975.

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In 1960, the merchant fleets of the Bloc countries carried a little less than 40 percent of their own seaborne foreign trade (see Figure 2). A comparison of the growth rates of the Bloc fleets and of aggregate Bloc foreign trade indicates that by 1965 they will be carrying nearly 60 percent of a much larger foreign trade. Thus, despite the growth in the Bloc fleets, by 1965 Free World shipping will still be carrying about 55 million tons of Bloc foreign trade cargoes compared with about 47.5 million in 1960. But Bloc shipping will be carrying about 80 million tons in 1965 compared with only 28.5 million tons in 1960. Thus in the period 1960-1965 it should be noted that the foreign trade of the Bloc is still growing faster than the carrying capacity of its merchant fleets.

Before proceeding further with the analysis we should note that there is an upper limit to the percentage share of their seaborne foreign trade for which Bloc countries can control the transportation. As mentioned before, a number of Free World trading partners will insist that trade agreements provide the right to carry half of the cargo that is exchanged. They include, particularly, the less developed countries that are building national fleets for prestige purposes or in order to conserve foreign exchange. Further, it is not always possible for the Bloc to purchase F.O.B. and sell C.I.F. In that recent and revealing book of the Ministry of the Maritime Fleet entitled "Transport USSR, Volume II, Ocean Transport", an opinion is given that the Soviet merchant fleet can hope to carry as much as three-fourths of the nation's total seaborne foreign trade. Accordingly, we will accept 75 percent as the upper limit for the Bloc in this respect.

At some point of time between 1965 and 1970 the rapidly growing Bloc fleets will be able to carry all of the seaborne foreign trade for which they will be able to control the transportation, and will no longer be dependent on tonnage chartered from the Free World. Thereafter, the Bloc fleets, by growing more rapidly than their aggregate seaborne foreign trade, would have excess tonnage with which to compete in the tramp and liner markets of the world. By 1970 such excess tonnage is likely to amount to almost 2 million DWT and by 1975 to about 6 million DWT. The latter amount would exceed the size of the Bloc fleet in 1960 and be equal to about 1/8 of today's world tramp fleet.

This excess Bloc tonnage, not required to discharge Bloc foreign trade transportation responsibilities, would enable the Bloc to establish scheduled liner service on the world's important trade routes, to make a respected economic presence felt in the ports of the developing countries, and to set rates in the liner and tramp markets of the world. Under such

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Item 14 (Cont'd)

conditions, tonnage stabilization schemes would tend to lay up Free World shipping only to make way for Bloc shipping in the tramp market, and the Bloc would reap the benefits of the supported price. In liner service, Bloc shipping could undercut the freight rates of the conferences on selected routes and be assured of good loadings. Another glance at Figure 2 will reassure us that the Bloc cannot take all the seaborne freight business away from Free World shippings. But it can, if it so desires, make the ocean shipping business unprofitable for many tramp and liner operators, and disrupt established ocean shipping patterns. There is no question that the Soviet Ministry of the Maritime Fleet harbors a desire to have this power. The Soviet book "Ocean Transport", mentioned earlier, refers to the expectation that the merchant fleet will "exert an active influence on the world market", "a decisive influence on the level of world freight rates", and will have a role in "the freight carrying operations of foreign shippers". Moreover, it is one of the declared aims of CEMA to make Bloc shipping independent of fluctuations in the world shipping market.

This discussion has been generalized and the analysis has been oversimplified. Estimates of future world fleet size are based on extrapolations from recent data. Estimates of future Bloc trade and fleet size are based on Bloc plans, and the plans of the Bloc are only their own extrapolations. The data are estimated, but the trends seem clear. Bloc shipping is already engaged in liner service and is likely to compete strongly in that service even before the Bloc is independent of the need to charter Free World tramp tonnage. Nor is it a foregone conclusion that Bloc shipping will engage in ruinous competition with a large number of liner conferences; its shipping companies are likely to join some of the conferences when it is expedient to do so.

In summary, the health of international shipping depends on the balance that exists between the aggregate availabilities of cargoes and of ships on the world shipping market. The effect of Bloc activity is only one of many other effects on the market in the aggregate. Following the Suez Crisis, a rapid rise in new-builds without a proportionate increase in cargoes forced freight rates down and created a depression in the shipping industry. In the period since 1950 and continuing past 1965, the growth in Bloc seaborne foreign trade has exceeded and will continue to exceed the growth in the carrying capacity of its fleets and is having a buoyant effect on the world shipping market. Because of redundant capacity, the shipyards of the world can build ships more rapidly than world trade can use them. Orders for ships are gratefully accepted from Bloc countries by the shipyards of the Free World and are contributing

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Item 14 (Cont'd)

in significant measure to the growth of the Bloc fleets. Such orders help maintain employment in the world shipbuilding industry but add to the general world redundancy of ships.

The Bloc is primarily concerned with achieving freedom from dependence on Free World shipping. At some time (we think before 1970) the Bloc countries may have sufficient shipping to carry the share (we accept about 75 percent) of their seaborne foreign trade, for the transportation of which they hope to be responsible, and their surplus tonnage will be competing for the tramp and liner business of third countries. The Bloc countries will want to compete in the international shipping market in order to show their flags in the ports of the world and in order to earn foreign exchange. Between 1960 and 1975, the fleets of the Bloc are expected to grow from 4 percent to about 11 percent of the world fleet.

The Bloc can use its ships to attack selected liner conferences in rate wars, but if it is to be a purveyor of ship tonnage, it is not likely to want world freight rates generally depressed to uneconomic levels. Bloc shipping costs, and, if world freight rates are too low, participation in the world shipping market would not be a good means for the Bloc to earn foreign exchange. The export of some other service or commodity might offer greater returns.

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COMPARATIVE VALUE OF BLOC AND NON-BLOC SHIP CONSTRUCTION FOR THE SOVIET UNION, 1959-65

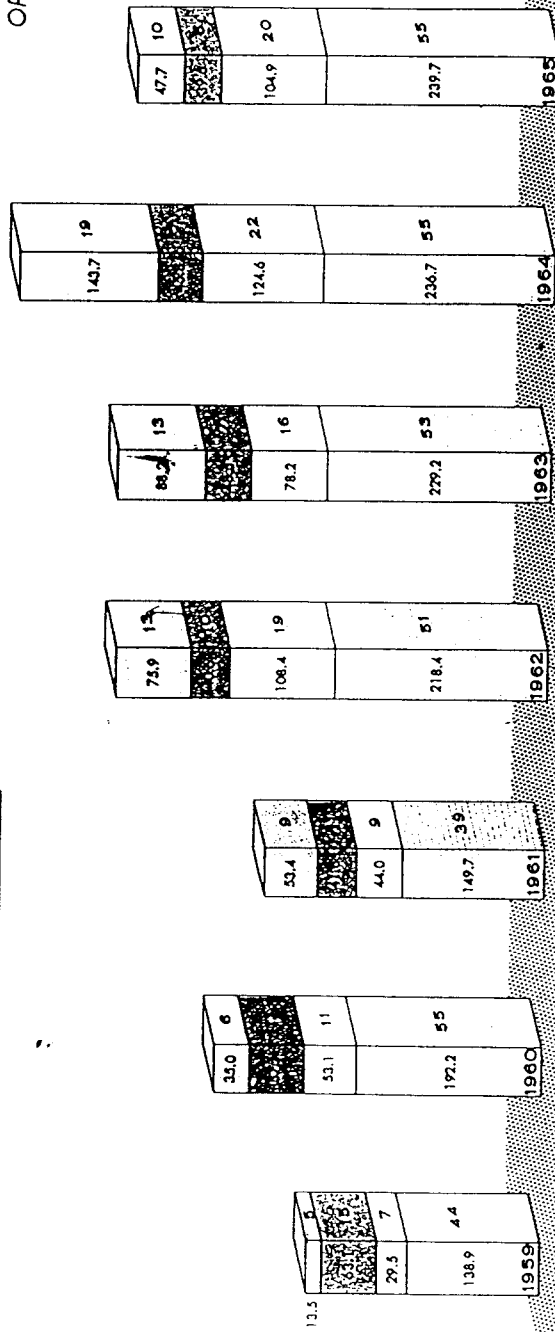
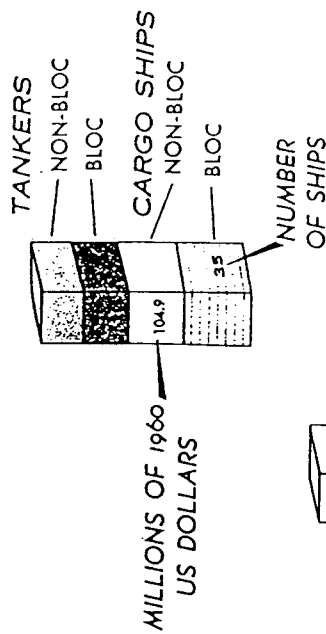
CUMULATIVE TOTALS

1959-65 BLOC TANKERS - VALUE - \$336.5 MILLION
NUMBER OF TANKERS: 67

1959-65 NON-BLOC TANKERS - VALUE - \$457.4 MILLION
NUMBER OF TANKERS: 75

1959-65 BLOC CARGO SHIPS - VALUE - \$1,404.8 MILLION
NUMBER OF CARGO SHIPS: 352

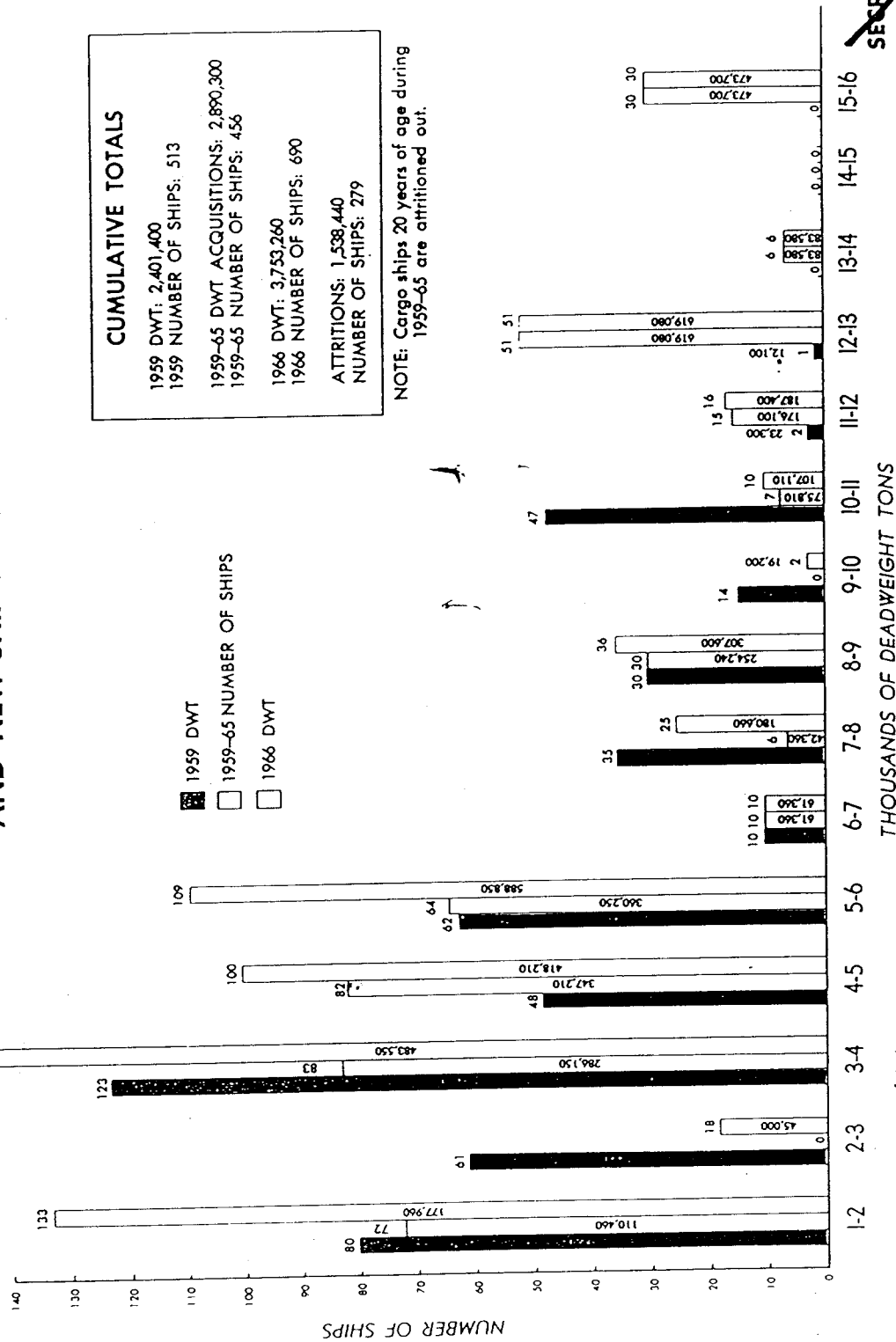
1959-65 NON-BLOC CARGO SHIPS - VALUE - \$542.7 MILLION
NUMBER OF CARGO SHIPS: 104



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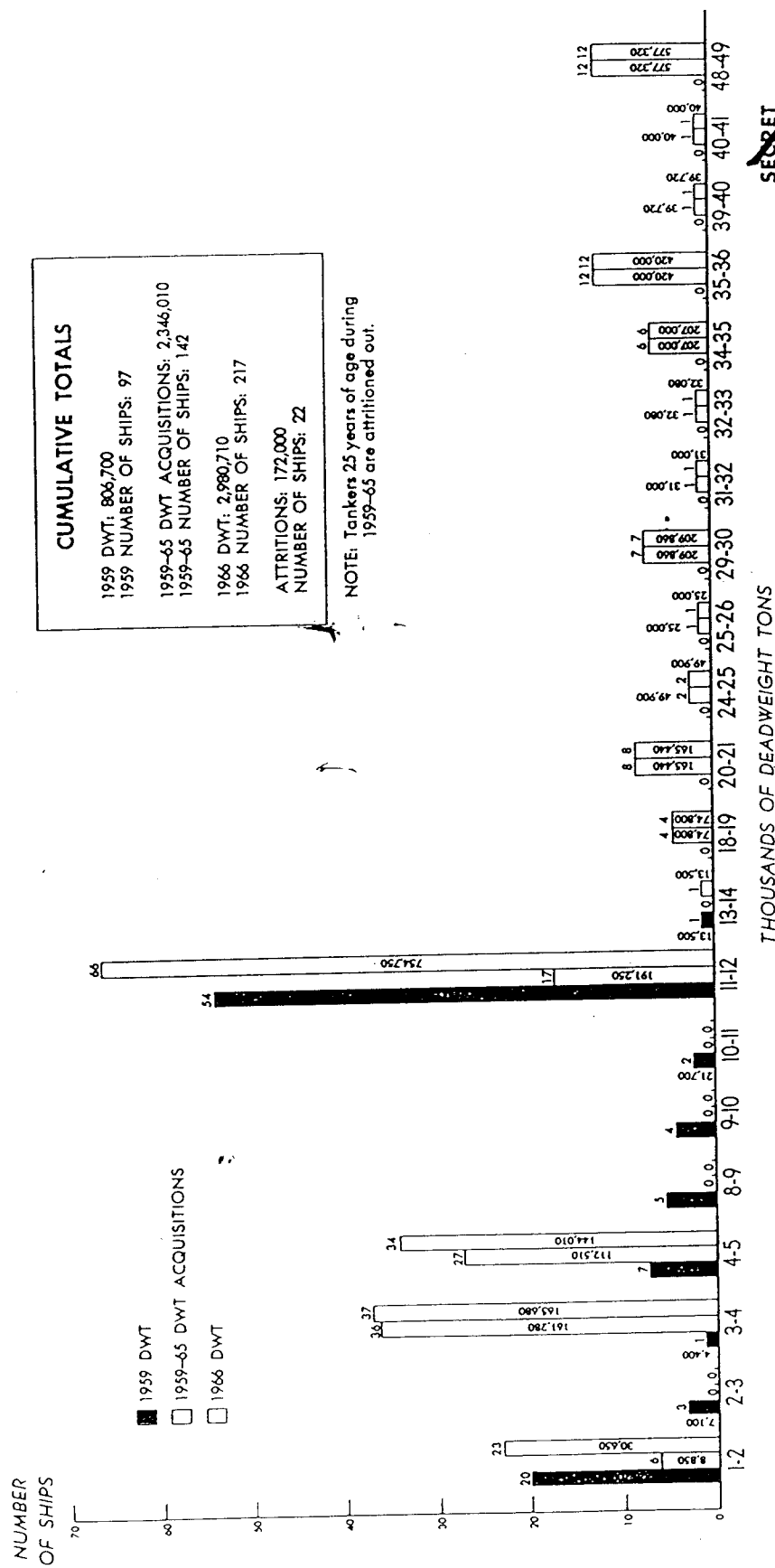
SIZE AND COMPOSITION OF THE SOVIET CARGO FLEET, 1959, 1966* AND NEW SHIP ACQUISITION DURING 1959-65



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SIZE AND COMPOSITION OF THE SOVIET TANKER FLEET, 1959, 1966* AND NEW SHIP ACQUISITION DURING 1959-65

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• As of 1 January

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